NOVEMBER '61

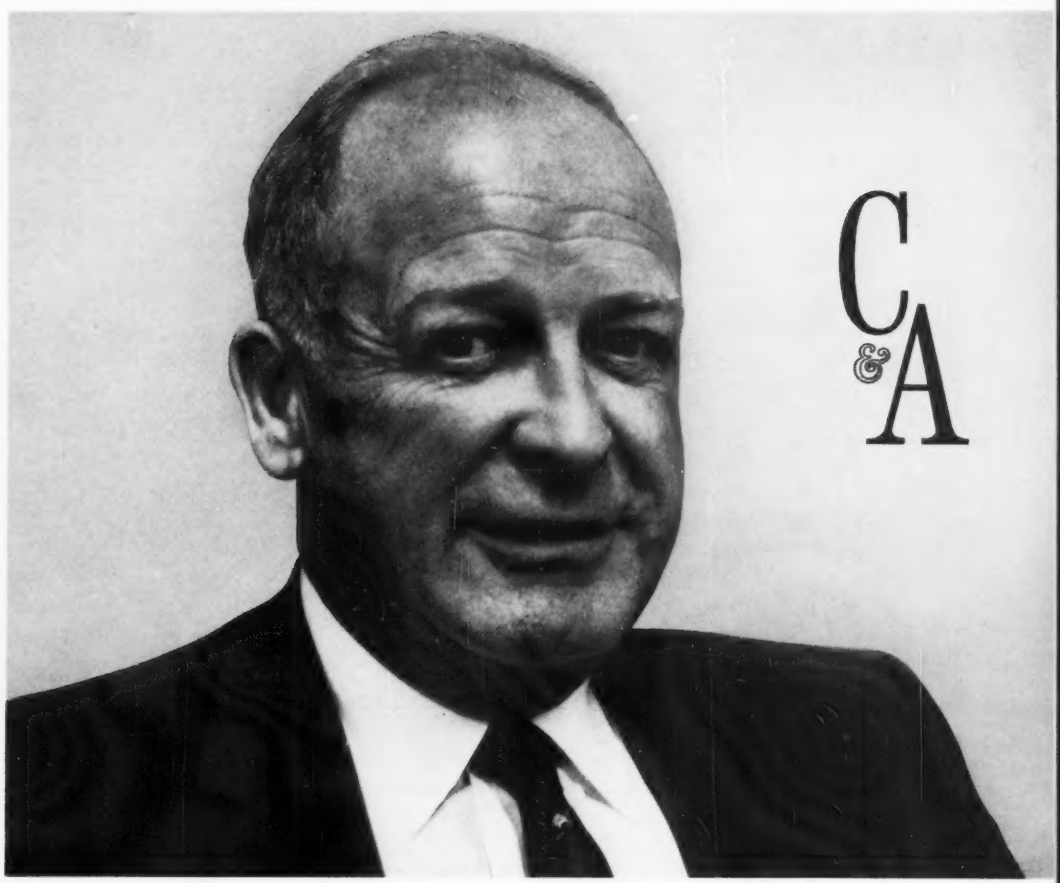
MODERN TEXTILES MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES



C&A

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REVIEW OF NEW INDUSTRIAL FABRICS

Digests of AATCC convention talks

Report on Zantrel polynosic fiber

New laminate adhesive method

PLUS 10 MORE INFORMATIVE ARTICLES AND USEFUL REPORTS

Cone surfaces...
why different types?

In all yarn packaging on cones, tension at the traverse extremes tends to pull the yarn toward the cone center. Only a surface which resists this force can provide the foundation for a satisfactory package. Sonoco offers a number of cone surfaces designed to meet the varied characteristics of natural or synthetic yarns. They have been developed over the years through research and actual production.

Sonoco cone surfaces may be smooth, high mark, low mark, Velvet (ground) or Unitex (flocked).

High Mark Surface

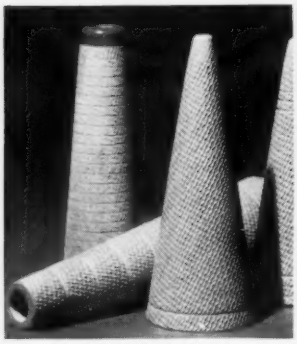
Low Mark Surface

Velvet Surface

Unitex Surface

Velvet and Unitex surfaces can be applied over the entire length of the cone or as bands at critical points. Textures of Velvet and Unitex surfacing range from fine to coarse and selection of the proper degree depends on twist, denier and number of filaments of the yarn to be wound. The Unitex surface has also proven to be an effective barrier against absorption of coning oil by the paper. All surfaces can be scored, embossed or grooved. Sonoco sales engineers are qualified to help in the selection of the type best suited to your needs.

Sonoco offers a background of over 60 years in solving yarn winding and delivery problems. *Only Sonoco,* in this field, provides continuous research and product development with integrated manufacturing facilities. *Let Sonoco experience help you!*



Scored Surfaces

Grooved Surfaces

SONOCO

Products for Textiles

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MODERN
TEXTILES MAGAZINE

November 1961 Vol. 42 No. 11

Modern Textiles Magazine
Established 1925

* * *

Published Monthly by
Rayon Publishing Corporation
303 Fifth Ave., New York 16, N. Y.
MUrray Hill 4-0455

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Subscription Rates: North and South America and U. S. Possessions, one year $5.00; all other countries, one year, $8.00. Postage prepaid by the publisher. Single copies $1.00.

BPA

Member of
Business Publications Audit of Circulation, Inc.

Accepted as a controlled circulation publication at the Post Office, Manchester, N. H. Editorial and Circulation offices at 303 Fifth Avenue, New York 16, N. Y. Publication offices at 215 Canal Street, Manchester, N. H.

(Originally entered as second-class matter at the Post Office, New York, N. Y. August 20, 1925).

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The Principal Trade Groups

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American Cotton Manufacturers Institute, Inc. ..... 1501 Johnston Bldg., Charlotte, N. C.
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Silk and Rayon Printers and Dyers Ass'n of America, Inc. ..... 1450 Broadway, New York
Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York

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ROBERTS ARROW SPINNING.. AN INVESTMENT FOR PROFIT

Profit is the ultimate motive behind the purchase of new spinning or any other capital equipment. And profit essentially depends upon the spread between selling price and manufacturing costs.

In as keenly a competitive industry as textiles, profits are generally determined not so much by high prices but more by high quality coupled with low costs so that products of superior saleability, or value, can be offered.

In yarn spinning, low costs with high quality depend mainly on Versatility, Productivity, and Dependability.

The answer: Roberts Arrow Spinning . . . An Investment for Profit.

CUTS COSTS AND RAISES QUALITY 10 WAYS

➨ **INCREASED SPEEDS!** 20% to 50% higher, even up to 15,000 r.p.m. spindle speed, achieved by dynamic balancing of all components, plus maximum use of ball bearings.

➨ **UNMATCHED VERSATILITY!** Changes in fiber, yarn number, draft, twist and bobbin build are quickly accomplished. Coarse or fine yarns from 2s to 120s count. Choice of drafting systems: FC for short or long staple cotton plus staple synthetics to 2"; GS for synthetic fibers from 1½" to 3" or worsteds to 6½"; GW for all synthetic fibers, worsteds or blends up to 8" length.

➨ **HIGH DRAFTS!** A broad range of drafts from 10 to 60 is successfully handled on new Arrow Spinning, eliminating roving processes, improving fiber blending, increasing fiber control and upgrading quality.

➨ **HIGHEST YARN QUALITY!** New Arrow Spinning consistently spins stronger, more even yarns. Superior yarn quality with consistency from bobbin to bobbin is assured by simple, gadget-free drafting systems which provide effective fiber control and uniform weighting on all spindles.

➨ **REDUCED CLEANING, MAINTENANCE!** Elegantly functional, new Arrow Spinning has been designed and engineered for cleaner, trouble-free operation. Simplification of components, fewer parts and streamlined design provides reduced cleaning, more quickly done.

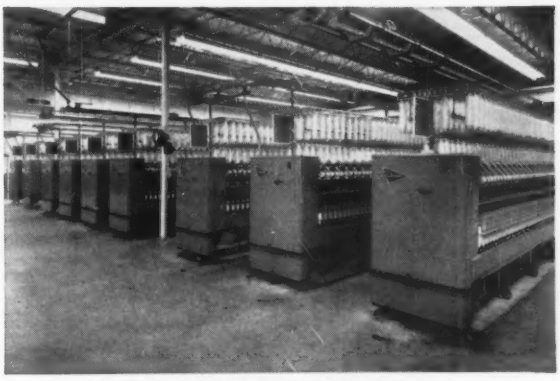
➨ **FULLY BALL BEARING EQUIPPED!** in all moving, turning, rotating and oscillating parts for smooth, dependable performance with substantially lowered electric power consumption. Lubrication requirements are eliminated or minimized.

➨ **SPACE SAVING WIDTH!** Only Arrow Spinning is available in both 25-inch and 36-inch widths. The 25-inch space-saving frame permits installation of five machines in the space formerly occupied by four, increasing spindleage and production by 25% in the same mill area.

➨ **BIGGER, HEAVIER PACKAGES!** Arrow Spinning puts more yarn on the bobbin, tighter wound due to better yarn tension through its frame geometry. Larger rings, longer bobbin lengths and improved bobbin build increase package size and weight, resulting in longer doff cycles plus substantial savings in winding with less knots.

➨ **RUGGED CONSTRUCTION!** and close precision of manufacture and assembly assure quality and long life of Arrow Spinning. Refined and streamlined, free of gadgetry and frills, and engineered for peak performance, new Arrow Spinning features many technological improvements contributing to better, less costly spinning.

➨ **ATTRACTIVE LOW PRICE!** The superior operational economy and productivity of new Arrow Spinning, and its new low investment cost, provide for a quick return on investment.



Installation of Arrow Spinning Frames, Butte Mills Division, Jonathan Logan, Inc.

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

Textile News Briefs

Buy Black Panther Co.

Roberts Co., textile machinery manufacturer, has acquired as a subsidiary the Black Panther Co., Inc., charcoal producer and chemical company, Robert E. Pomeranz, Roberts president, announced. Black Panther will continue to produce charcoal, with a study under way of the charcoal market in order to determine plans for the subsidiary's future operations.

Indian Head Buys Bancroft

Indian Head Mills, Inc. has purchased Joseph Bancroft & Sons Co. Indian Head made an offer of $20 a share for the common stock last August and negotiations have now been completed. Among the largest holdings in the Bancroft firm included W. R. MacIntyre, president, members of his immediate family and some of the Bancroft directors. Joseph Bancroft will continue under its present management in Wilmington, Del. as a subsidiary of Indian Head Mills, Inc.

Big Caprolan Promotion

Allied Chemical Corp. has launched an advertising program to give more direct selling support to retailers of carpets produced from the company's Caprolan continuous filament nylon. The ads consist of 204 full-page four-color layouts in a group of 30 associated Sunday supplements, "Parade," which circulates through 65 newspapers, and also in a number of independent Sunday supplements.

Allied also has extended its "Certified for Performance" program to include upholstery fabrics made of Caprolan. To qualify for the label, upholstery fabrics must be tested by an independent laboratory for a number of characteristics and properties.

Turbo Southern Office

Turbo Machine Co., Lansdale, Pa., has opened a new Southern sales and service office in Charlotte, N.C. John R. Stafford, sales engineer, heads the new office.

Taiwan Cellophane Plant

A complete cellophane installation will be supplied to the China Artificial Fiber Corp. in Taiwan by Chemtex Inc. of New York City. The project is being financed by the China Development Corp., an independent financing institution established in Taiwan for the fostering of the island's independent development. The corporation in turn receives a major portion of its support from agencies such as the Development Loan Fund.

Chemtex reports that all the machinery for the project is being furnished from the U.S. Deliveries of the machinery are expected to be completed by spring, 1962. The new installation will be the first cellophane plant in Taiwan.

Pastore To Get Award

U.S. Senator John O. Pastore (R.I.) has been named by the Textile Section of the New York Board of Trade to receive its annual award for 1961 in recognition of his understanding and support of the textile industry. The award will be made at a luncheon at the Hotel Pierre, New York City, on November 9.

New Kohorn Plants

Nippon Rayon Co. Ltd., Osaka has entered into a machinery and technical assistance agreement with the Von Kohorn group of companies in connection with nylon 6 tire cord production. A pilot plant will be built by the Japanese producer to evaluate recently announced developments by Von Kohorn International Corp. of White Plains, N. Y. with respect to stabilized nylon 6 tire yarn. A similar pilot plant for nylon 6 tire yarn will be supplied by Von Kohorn to Toyo Rayon Co. Ltd., Osaka.

A Von Kohorn spokesman stated that both Nippon Rayon Co. and Toyo Rayon Co. had their original manmade fiber plants supplied and started up by the Von Kohorn organization 35 years ago.

Dura Beau Finish

Pleasant Valley Finishing Co. will soon become the first plant in the U.S. to supply the Dura Beau finish on all applicable fabrics processed at the plant. Dura Beau finishes are made by Scholler Brothers, Inc. The finish, applicable to almost every fiber and fabric construction, has been undergoing tests and is now being released to selected plants under quality and trademark control agreements.

Urethane Firms in Merger

Midwest Foam Products Co. and Shelley Urethane Industries, Inc., have agreed on a merger plan which calls for formation of a new corporation to be known as Urethane Industries International, Inc., with headquarters in Evanston, Ill. Both companies manufacture and fabricate polyurethane.

How Riordon helps textiles from the ground up

RIORDON SALES is backed by 3 research laboratories in the United States and Canada. These laboratories start with seedlings to produce new and improved pulps for the textile industry.

Skilled scientists and technicians work year round to assure textile mills of improved, more *uniform pulps*. Pulps for better yarns. Yarns that are stronger. That dye better. That can be produced faster, more economically.

These laboratories and research facilities exist to serve you. To assure you *uniform* pulps *every time*. Such great pulps as: Acetacell, Novocell, Tenacell, and Tyrecell.

Riordon has a proud history of working with the most progressive companies in the textile industry. Let Riordon be of service to you.

RIORDON
SALES CORPORATION LIMITED

220 East 42 Street, New York 17, N. Y.

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Men who think

BIG

choose the WHITIN COMMODORE® Twister

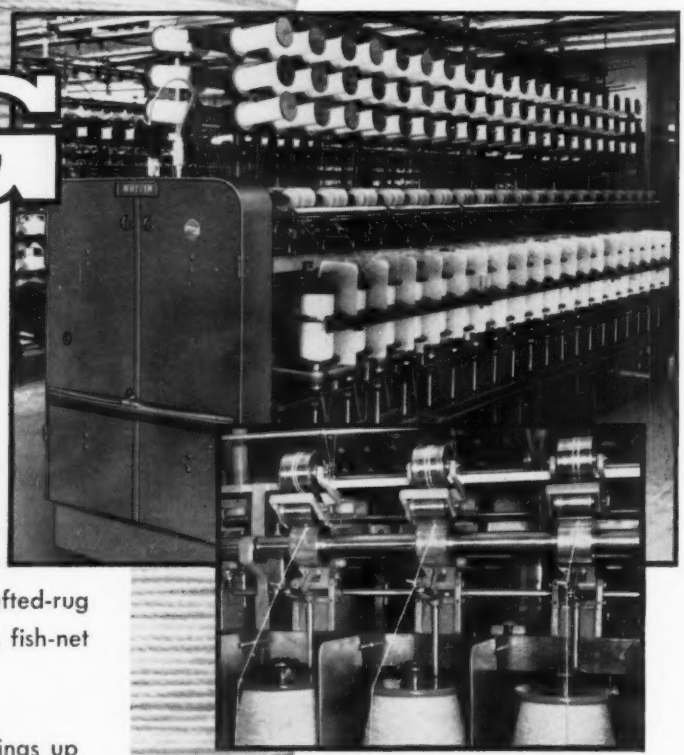
The COMMODORE is designed to do just one job — heavy-duty, coarse yarn twisting, and to do it more *profitably* for you.

The COMMODORE is ideal for twisting a wide variety of plied, heavy and coarse yarns such as tufted-rug yarns, carpet yarns, duck, tire cord, fish-net cord and paper.

* * * * * * * * *

With a 12" traverse and giant rings up to 8½" in diameter set in heavy steel ring rails, it is capable of processing yarns as coarse as 45,000 denier on packages holding as much as 11.0 lbs. of yarn. The COMMODORE has a rugged, solidly-built frame — a frame that can carry its tremendous loads without flinching. It is liberally equipped with anti-friction bearings, has precision-cut gearing and a sturdy pulley-type tape drive. Extra heavy ball bearing spindles mounted in cast iron spindle rails easily rotate these heavy packages at speeds reaching 4000 R.P.M.

A Big Twister to do a Big job — with all the advantages of **big, Big, BIG** packages.



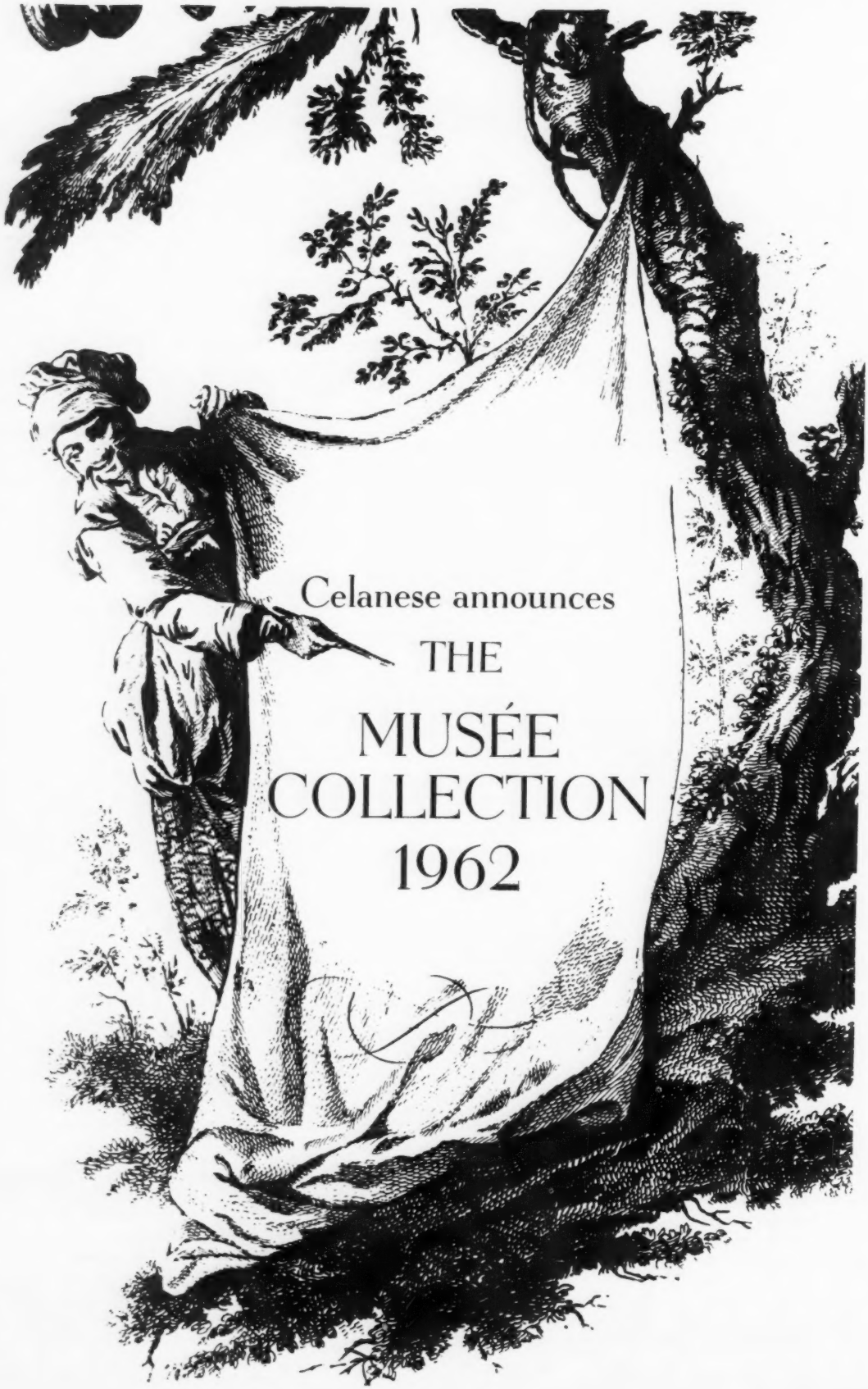
Of particular interest to woolen yarn and carpet mills is the famous Whitin selective-type trap motion. It is available as optional equipment and can accommodate up to 6 ends. Proven on scores of installations, it has established an industry-wide reputation for efficient, positive and trouble-free operation.

Write Today for Descriptive Folder

WHITIN MACHINE WORKS

WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.


Celanese announces
THE
MUSÉE
COLLECTION
1962

Celanese discovers a fabulous museumful of historic fabric designs to inspire magnificent new decorative fabrics for The Musée Collection . . . Celanese 1962 home furnishings promotion.

From the archives of the Musée De L'Impression Sur Étoffes in Mulhouse, France, come fabrics predating the French revolution. This museum is the only one in the world devoted entirely to textile printing. Its collection has been preserved over the centuries, was hidden away in the French countryside during the war, is reassembled now in the museum and brought to light at last by Celanese. The collection includes carefully authenticated documents, historic commemorative fabrics, rare tapestry designs and thousands more as yet untouched for commercial use. Celanese has been privileged to take exclusive photographs of these treasures and will make them available to converters for translation into fabrics with Celanese Contemporary Fibers. And we will back these fabrics in '62 with every promotional resource at our command. Celanese promotions build fabric demand. Look for even greater demand for fabrics for The Musée Collection—1962 promotion. Be ready for it! Celanese Fibers Company, 522 Fifth Avenue, New York 36

(a division of Celanese Corporation of America)

Celanese®

Celanese contemporary fibers

Dependability is built into Draper looms . . . part by part. Regardless of size, shape or location, each part is engineered and manufactured to precise tolerances. The Harness Cam Assembly illustrated above, is one reason why Draper has become the accepted name for quality and dependability throughout the textile industry.

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N. C. • SPARTANBURG, S. C.

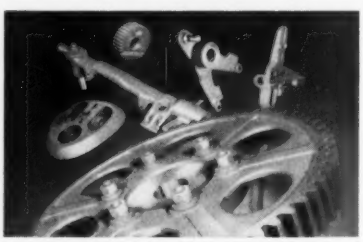
RETARDING LOOM OBSOLESCENCE

A steady flow of new Improved Repair Parts keeps mill weaving machinery up-to-date

Draper Corporation is continually improving parts and mechanisms for its looms. Year after year, scarcely a week passes without the introduction of another Improved Repair Part for one or more Draper loom models. These are all designed by Draper research and engineering staffs to keep present mill machinery competitive with our newest looms.

Each Draper Improved Repair Part is made for application to as many mill loom conditions as possible. Although they may be copied by others, the original design of these parts can be successfully accomplished only by the loom builder, for he alone has complete information on the various loom constructions in the field.

These Improved Repair Parts help to keep older looms operating profitably. They postpone the day when a mill must consider its looms to be obsolete.



What is an Improved Repair Part? An Improved Repair Part is one so developed by Draper engineers that is can be applied, as far as possible, to all existing Draper looms in the mills. It is designed to give one or more of the following benefits:

1. Better service throughout a longer life than the original loom part.
2. Easier installation with less down time.
3. Better loom operation.
4. Production of higher quality fabrics.

How Improved Repair Parts are developed. Ideas for Improved Repair Parts originate from Draper engineering and manufacturing de-

partments, Construction Committee members, Draper sales and service men, recommendations of material suppliers and, frequently, from suggestions by mill superintendents, overseers, and loom fixers.

Usually extensive "mill trials" are conducted, whereby a new part proves itself in actual weaveroom operation, before it is offered for sale.

Although Improved Repair Parts are designed to replace older parts, mills often use both old parts and new Improved Repair Parts simply because supply room bins and records are set up for ordering both. Generally the older number could be eliminated to advantage.

Why Draper Parts are best for Draper looms. Uniformity of parts is necessary for successful standardization in setting loom mechanisms to gauge. Worn or poorly fitting parts just cannot be set to gauge. Competitive mills know that only with the best loom parts available can they get uniform and accurate settings, that *only with gauged settings can they get maximum production, lowest weaving costs and highest cloth quality.* These mills are first putting their looms in top condition and then running them with correct and standardized settings.

In such a planned program, differences in initial cost of repair parts are often found to be of least importance. More and more mills are using Draper parts *exclusively* to maintain their weaving machinery at highest competitive standards. Draper parts are made from the same metal mixes as original parts furnished with the loom. They are finished to master overall gauge dimensions available only to the loom manufacturer. Draper Improved Repair Parts fit Draper looms and each other better; as a result, they are dependable and last longer. Correct engineering design, selection of proper materials and use of economical manufacturing methods are determined for each Draper part by a competent knowledge of their effect upon *total loom operation.*

You can find out more about Improved Repair Parts from your Draper Improved Repair Parts Catalog, from Draper sales and service representatives, or by writing to Draper Corporation.

Draper Link Type Parallel . . . provides a positive fully constrained action, contributing to smoother shuttle flight, improved boxing, simplified adjustment and longer life of Shuttle Box and Pick Motion parts.

DRAPER CORPORATION

HOPEDALE, MASS • ATLANTA, GA • GREENSBORO, N. C. • SPARTANBURG, S. C.

To the Owners & Operators of CARDED COTTON MILLS

If you want carded goods that look like combed goods, blend 50% of Zantrel Polynosic® rayon in your key constructions.

The arithmetic will surprise you.

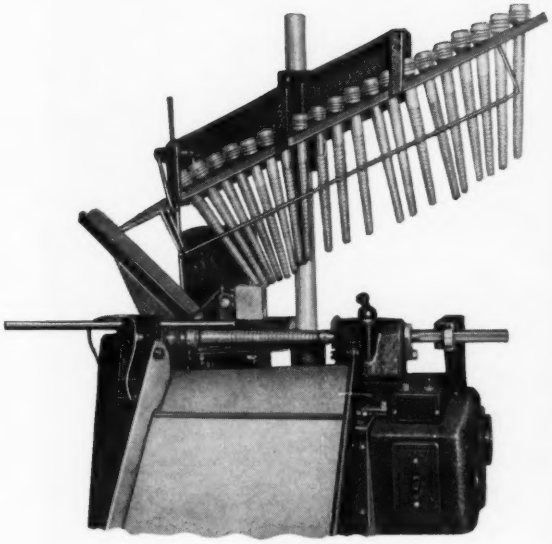
The market opportunity is as big as your total production, multiplied by your desire to make money.

We have grey and finished samples that will give you a rough idea of what we are talking about. Ask to see them.

ZANTREL®

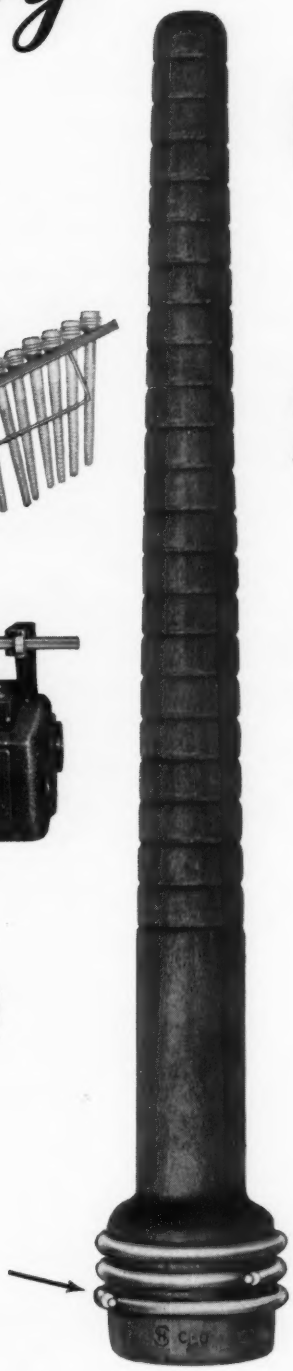
Hartford Fibres Company • 140 Madison Avenue, New York 16, N.Y. • OR 9-8560

Quality LOOM BOBBINS by Stehedco



SUPER ACCURATE
STEHEDCO ELECTRONIC TESTER

Stehedco Bobbins are tested for runout before shipment on the Super-Accurate Stehedco Electronic Tester. This machine is now available for sales. Ask our Representative about it.



NoMigrate — To prevent Ring Migration. Exclusive with Stehedco.

You get Improved Performance and Reduced Cost with STEHEDCO Bobbins because of

- **Extensive Research**
- **Superior Design**
- **Quality Control**
- **Rigid Inspection**

Stehedco
STEEL HEDDLE MFG. CO.
PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
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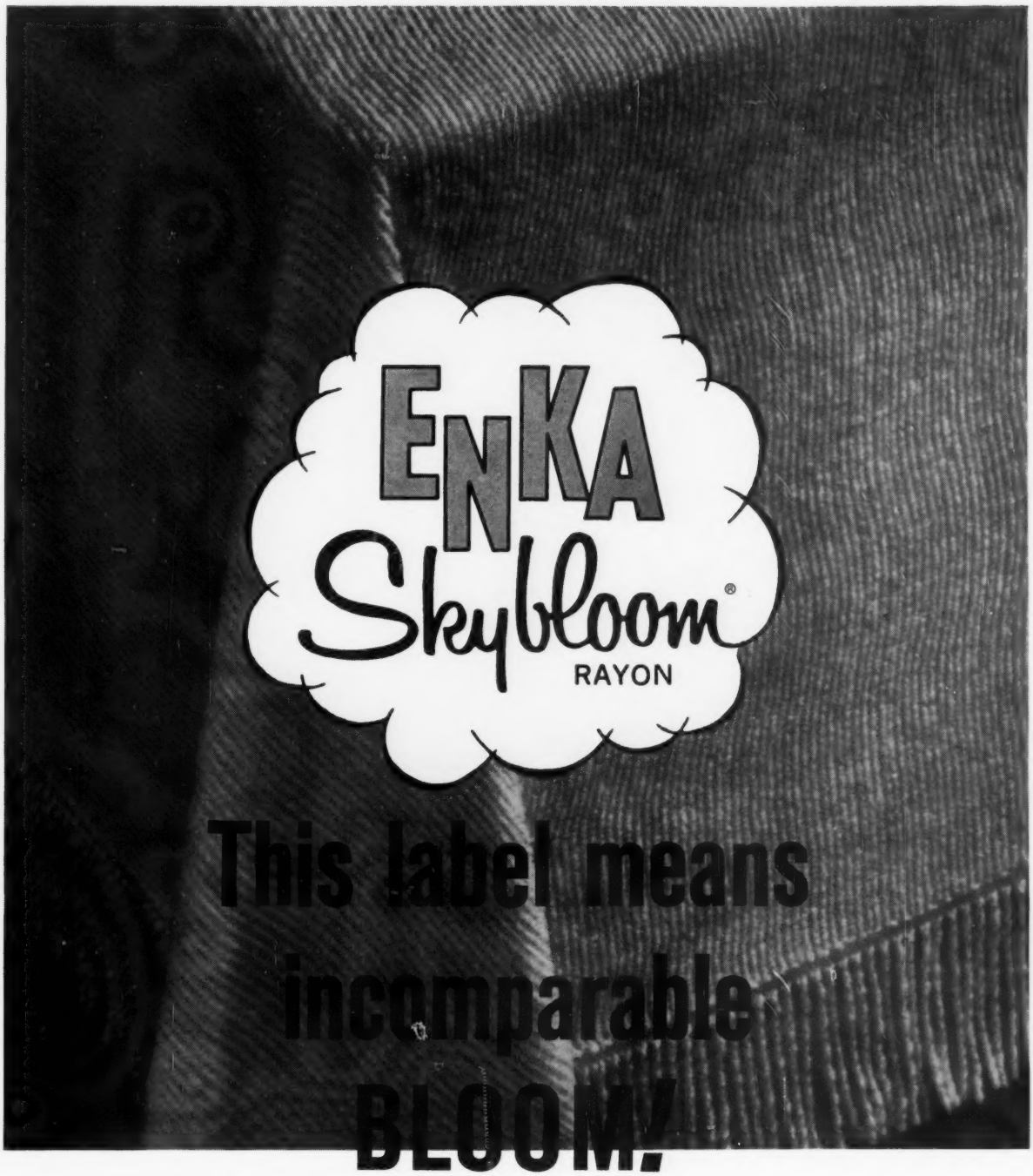


RIGHT NOW—we wish you could touch this corduroy chenille bedspread made of ENKA Skybloom. For only in this way can you actually realize *how much more bloom* Enka's new rayon staple tufting fiber gives to a spread.

We do think your business interest will be whetted by reading some of Skybloom's extraordinary selling points. Rigorously tested for superior performance standards, this extra high-crimp rayon offers you *uniformity of quality, less fallout, no waste, whiter goods, truer dyeing and styling versatility.*

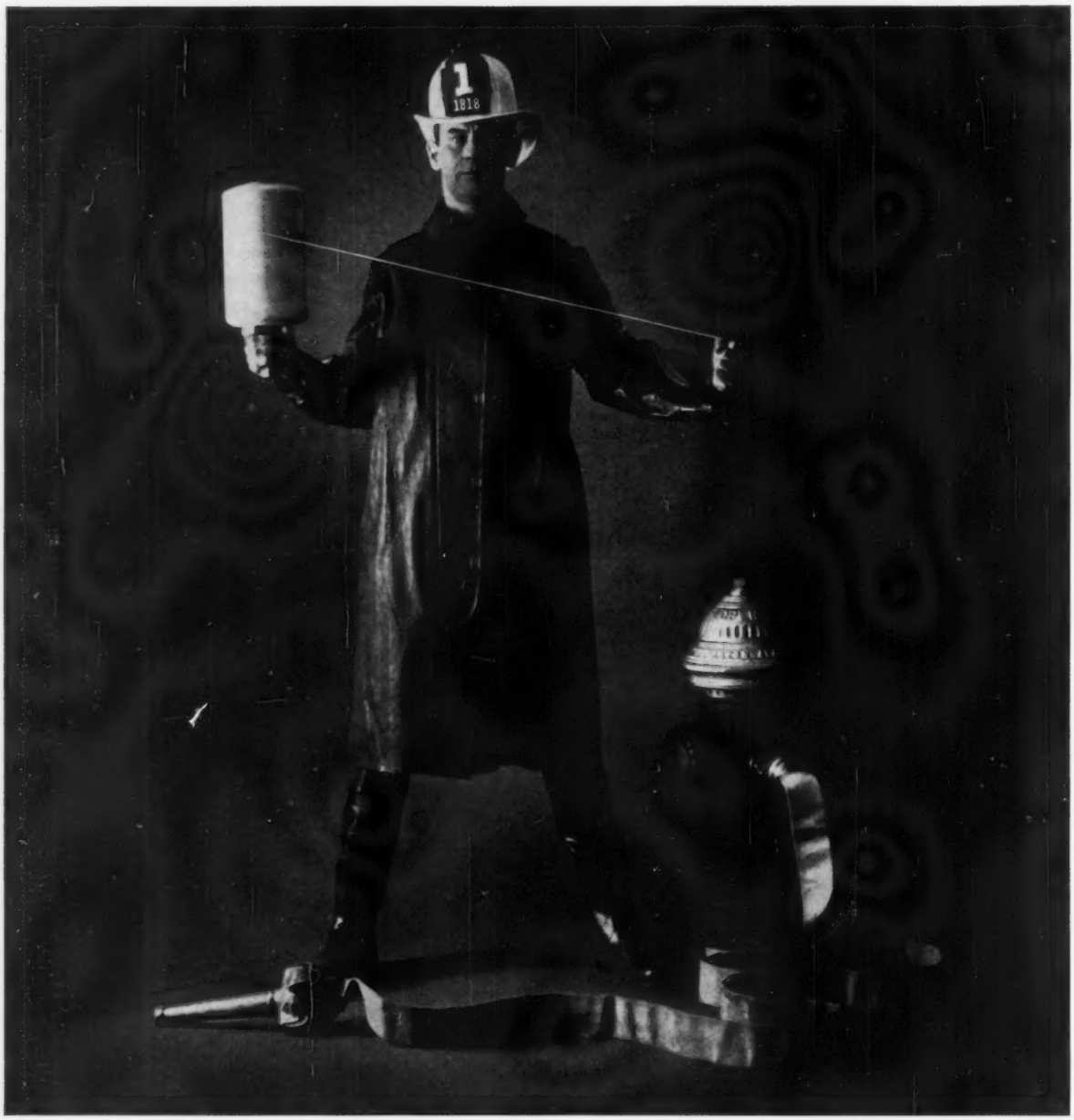
In addition, Enka Skybloom fiber assures you of an efficient and economical mill operation. Spinners can count on less shedding, more even yarn and an excellent yarn winding quality. Tufters will find less fallout, superior yarn quality and a low percentage of seconds with a Skybloom chenille yarn.

Try Enka Skybloom now. Call Enka Merchandising in New York at 350 Fifth Ave., PE 6-2300 or the District Sales Office nearest you.

Retailers: Write or call Enka Merchandising (address above) for the names of chenille spread manufacturers who are featuring the Skybloom label.

AMERICAN ENKA CORPORATION, ENKA, N. C. • PRODUCER OF NYLON • RAYON • YARNS • FIBERS

NEW YORK OFFICE: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: GREENSBORO • PROVIDENCE • ENKA



He's using a tougher yarn...why aren't you?

It takes a tough yarn to keep a fire hose operating at peak efficiency—and tough is the word for Caprolan® nylon by Allied Chemical.

But Caprolan nylon heavy yarns are more than just tough. They are remarkably versatile yarns possessing a number of outstanding performance characteristics. Their excellent dyeability, for example, has made these yarns ideally suited to areas where superior color performance is required—seat belts to complement today's high-styled automobile and airplane interiors, carpeting, home furnishings fabrics and industrial color coding to to name a few.

Caprolan nylon yarns are also included in U. S. Navy specifications for marine rope and are performing superbly in dozens of other end-uses where toughness, strength and flexibility are essential. If you have a tough job—we have the tough yarn for it. Our technical staffs are always ready to help you.

Allied Chemical

caprolan
NYLON FOR THE 60's

Fiber Marketing Dept., 261 Madison Ave., New York 16, N.Y.

MODERN TEXTILES
Magazine

Publisher's Viewpoint

At Last: Realistic Depreciation Rates

THE APPROVAL by President Kennedy of the decision of the Treasury Department to permit faster depreciation rates for textile machinery for tax purposes is indeed heartening news. The new estimates of useful life for textile machinery made public by the Internal Revenue Service provide for 15 years and in some instances 12 years compared with the earlier 25 to 40 year rule in effect since 1942.

Under the new depreciation schedule these items of textile equipment are reduced to 15 years: opening, blending and feeding equipment, carding machines, combers, drawing frames, roving frames, spinning machines, twisters, winders, slashers and looms. These items were subject under the old schedule contained in Bulletin F to a depreciation rate of 25 to 40 years.

The new ruling reduces to 12 years such finishing equipment as cotton bleaching, washing, drying and dyeing machinery. The former rate ranged from 15 to 25 years.

The new rates, the Internal Revenue Service explained, will apply to newly acquired textile equipment. Adjustments will be made, "prospectively only" the service said, to the remaining useful lives of machinery and equipment now in mills.

The new tax write-off provisions represent a victory in an effort that the textile industry, lead by the American Textile Machinery Association, has carried on vigorously for many years. The ATMA has worked long and hard to convince the Treasury Department that the depreciation schedules in Bulletin F were out of tune with the realities of machinery replacement and grossly unfair to the mills that use textile equipment.

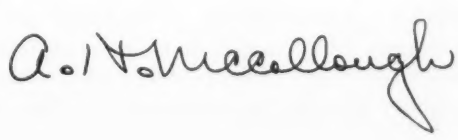
It is too early, of course, to evaluate with any certainty whether these fairer depreciation allowances will stimulate an accelerated flow of new machinery purchases by American mills. But there is every reason to be optimistic in this regard. J. H. Bolton, Jr. of Whitin Machine Works, president of ATMA, has indicated that his group is pleased with the new depreciation allowances and regards with "guarded optimism" the possibility that they will be a powerful lever in moving the mills to buy the new equipment required by today's highly competitive conditions in textiles.

Millmen Voice Approval

Perhaps of even greater significance than the understandably favorable reaction of machinery makers was the approval voiced by the American Cotton Manufacturers Institute, leading trade association of the users and buyers of textile machinery. The board of directors of ACMI declared that the industry is encouraged by the Administration announcement of a revised depreciation schedule on textile machinery "as the first concrete implementation of the President's seven point textile program."

"The new schedule recognizes for the first time the obsolescence factor in textile machinery and also the fact that the textile industry is on the threshold of major technological breakthroughs. Present and subsequent technological innovations in textile manufacture will require continuing review of the depreciation schedule . . ."

For our part, we share this sense of guarded optimism as to the beneficial results for both mills and machinery manufacturers which may flow from the new ruling of the Internal Revenue Service. The now superseded Bulletin F was long a painful thorn in the side of the textile industry. And we underline as nothing less than the factual truth the statement of President Kennedy, in approving the new depreciation rates, that the industry "is experiencing a major technological breakthrough in which advancing techniques engender further advances and make even recently developed equipment economically outmoded long before it is physically worn out."



TEXTILE NEWS

World Wide

BRITAIN TO LIFT QUOTAS on cotton goods from India, Hong Kong and Pakistan by 12% during 1962. In making the announcement, the Board of Trade said trade conditions would be reviewed every three months, starting November, so the three countries can "compete for their normal share of the market." Britain will take 422.4 million square yards from these Asian states next year, against 377 million in 1961.

POLYESTER RIGHTS SET for Nippon Rayon Co. by Inventa AG, Switzerland, the licensing agent for Emserwerke AG. The Japanese firm plans on producing 20 tons of polyester fiber daily. In Europe, the manmade fiber is called Grilen. At the moment, only two other Japanese firms (Toyo Rayon and Teikoku Rayon) produce and market polyester fiber in Japan under the joint trade name of Tetoron.

POLYPROPYLENE PILOT plant operation to get underway by Nitto Spinning Co. The Japanese company will use polymer furnished by Tokuyama Soda Co. The test plant will have a daily output of 1.1 million pounds. It will be located in Koriyama, in Northern Japan.

POLYVINYL YARN FIRM will be established jointly in Japan by Mitsubishi Rayon and Katakura Industry. The Vinylon polyvinyl alcohol filament yarns which the new company will produce will be aimed at the industrial and tricot markets. Construction is to start early in 1962 with output at the year's end expected to reach three tons per day. Katakura will have 70% of the capital, with Mitsubishi holding the rest.

ARGENTINA ASSISTING domestic manmade fiber producers. Plants manufacturing cellulose fibers are exempt from payment of duties and ad valorem taxes on machinery and equipment imports. Polyester fiber producers are included in the regulation. And Industrias Petroquimicas Argentinas Koppers SA, Buenos Aires, was recently freed of duties on imports of $175,000 worth of machinery to be installed at a polyester plant in Florencio Varela which will double the company's polyester output.

DUPONT'S ARGENTINE AFFILIATE, Ducilo SA, exhibited 50 garments of new rayon fabrics in Buenos Aires and now plans to show the items in a number of major Argentine cities. The company hopes to stimulate rayon demand throughout Argentina.

ISRAEL OPENS SPINNING mill for yarn output at Dimona, in the Negev. The $4 million, ultra-modern plant of Dimona Fibres Ltd., has 24,000 spindles. The mill is producing colored cotton and synthetic yarns for knitting and weaving. Dimona expects to export 80% of its output to the United States and Europe. Half the spindles use sliver-to-yarn spinning of the Japanese O-M type. The other half is equipped by Ingolstadt of Germany.

SPANISH KNITWEAR MEN have joined to form Exporpunt, a group of 16 major producers of men's, women's and children's ready-to-wear. The new association, according to its chairman, Luis Diogene, will oversee and expedite all export orders and will back up the guarantees of member manufacturers on both performance and delivery.

STABLE SILK MARKET is being sought by Japan, according to Ichiro Kono, Minister of Agriculture. He told a group of 700 industrialists that the government would do something to stabilize prices and output before the end of the year. He hoped, too, that an international meeting of users and producers nations could be arranged.

TEXTILE MACHINERY PLANT is to be built by two Italian companies, Snia Viscosa and Finmeccanica, in Trieste. The new concern, Stabilimenti Meccanici Triestini, will be producing spinning equipment for manmade fibers by the second half of 1962, according to trade reports. The plant will be built near the Trieste freeport and will employ some 500 persons.

INDIAN GUNNY SACK CLOTH can now be protected from insects under an insecticide formula devised by the Central Food Technological Research Institute, Mysore, India. The formula includes lindane plus DDT, Dutrex and peanut oil. It would be used for grain storage bags especially.

JAPANESE SCREEN PRINTING machine, said to be the first installed in Britain, is now in operation at Rochdale plant of Rainshore, Ltd. Made by Toshin Kogyo Co. of Osaka, the machine is said to be capable of printing in 12 colors at a rate of 4,000 yards a day.

HAPPY DRAGON made of rubber-coated nylon inflated with helium was built for Macy's Thanksgiving Day parade by Goodyear

Here are case histories of some PROFITABLE INDUSTRIAL FABRICS

By William E. Hoffman

THE OPPORTUNITIES for profit presented in making fabrics for industrial uses are being studied with more and more attentiveness by mill and converter managements with every passing year. Textile production and marketing men who have successfully developed fabrics utilizing manmade fibers for industrial applications report the task is not easy. No formula can be compiled for entering the industrial fabric field in a profitable way.

Nevertheless, the experiences of those mills and converters who have developed fabrics for new industrial uses indicate that, in general, it is necessary to analyze closely the end use for which a cloth is intended, and then design a cloth that fulfills this use economically. The new fabric thus offered must not only function economically in the end use for which it is intended—it must do so often in winning competition with other, older fabrics which may have been used for this purpose for many years. In other words, the new fabric, to displace an older fabric or other material, must in the long run, *cost the user less.*

To show how many aspects of American industry are finding advantageous uses for specialized industrial fabrics developed by some mills and converters we offer, in the following pages, some notable examples of recent trends in the application of fabrics, most of them made with synthetic fibers, to efficient uses in industrial, military and related fields.

If the go-ahead were given today, the U.S. could have a manned space station in orbit in three years, using presently known techniques, according to Goodyear Aircraft Corp. Manned space stations advocated by GAC would be doughnut shaped structures 30 to 100 feet or larger in diameter, manned by one or more persons and capable of use over an extended period of time, GAC vice president R. W. Richardson believes.

"Fabric stations," Richardson explains, "can be folded and packaged into suitable containers for boosting into orbit, then inflated into shape." Richardson reported that his company is building a 24-foot expandable space station for National Aeronautics and Space Administration test use, as well as a second experimental space station 30 feet in diameter, to be used for company research.

By patterning or weaving the fabric structure in the desired final configuration, it is possible to produce virtually any size or shape, such as spheres, ellipsoids, parabolids, cylinders and other bodies of revolution. Where special shapes are desired dual wall structures could be formed of Airmat, a Good-

year fabric development. The process calls for the simultaneous weaving of two wall fabrics with interconnecting thread filaments, the length of the filaments determining the shape of the structure. Further developments in basic fibers and elastomers, Richardson said, permit utilization of woven high temperature metals and glasses which would result in structures capable of withstanding the heating of specific re-entry applications.

"Other advantages of fabrics for space stations and other orbital or interplanetary uses," according to Frederick J. Stimler, engineering specialist for Goodyear, "are packageability, ease of deployment and erection, light-weightedness and quick overload recovery."

Among other space age fabric uses outlined by Stimler are: ballons for deceleration and stabilization of vehicles reentering the earth's atmosphere (parachutes are virtually useless at high speed and high altitude); re-entry vehicles; solar heat collectors for gathering and concentrating the sun's rays so their power can be converted to electric energy; restraint systems to hold pilots within escape capsules during ejection from high speed aircraft; high altitude vehicles, and vehicles and structures for moon explorations.

Goodyear engineers have already tested a full-scale model of a device to stabilize and cushion the landing of space vehicles on the moon or planets. The device is a doughnut-shaped inflatable fabric ring, which would be deflated and packed around the sides of the space vehicle. As the space craft slowed for landing, the inflatable coated fabric tubing would be positioned below the payload, braced, then inflated to soften the landing impact.

Improved Conveyor Belts

MANMADE FABRICS and yarns, in addition to the more "exotic" space age applications, are finding increasing down-to-earth usage. For example a conveyor belt nearly a mile long is moving 20 million tons of earth in a remote stretch of northern New Mexico. And when the job is finished the conveyor system will be completely dismantled—after working only 350 days.

The belt was made by United States Rubber Co. to move fill for the huge Abiquiu Dam project. The dam is located about 1½ miles from the gravel pits. Between these points the rubber company's belt is moving three times as much fill as was needed for Hoover Dam.

The Conveyor Co. of Los Angeles designed and built the conveyor system, with U. S. Rubber designing and building the high-tension belt. In operation, the belt must support a continuous load in excess of 32 tons along its length. To handle this weight, U. S.

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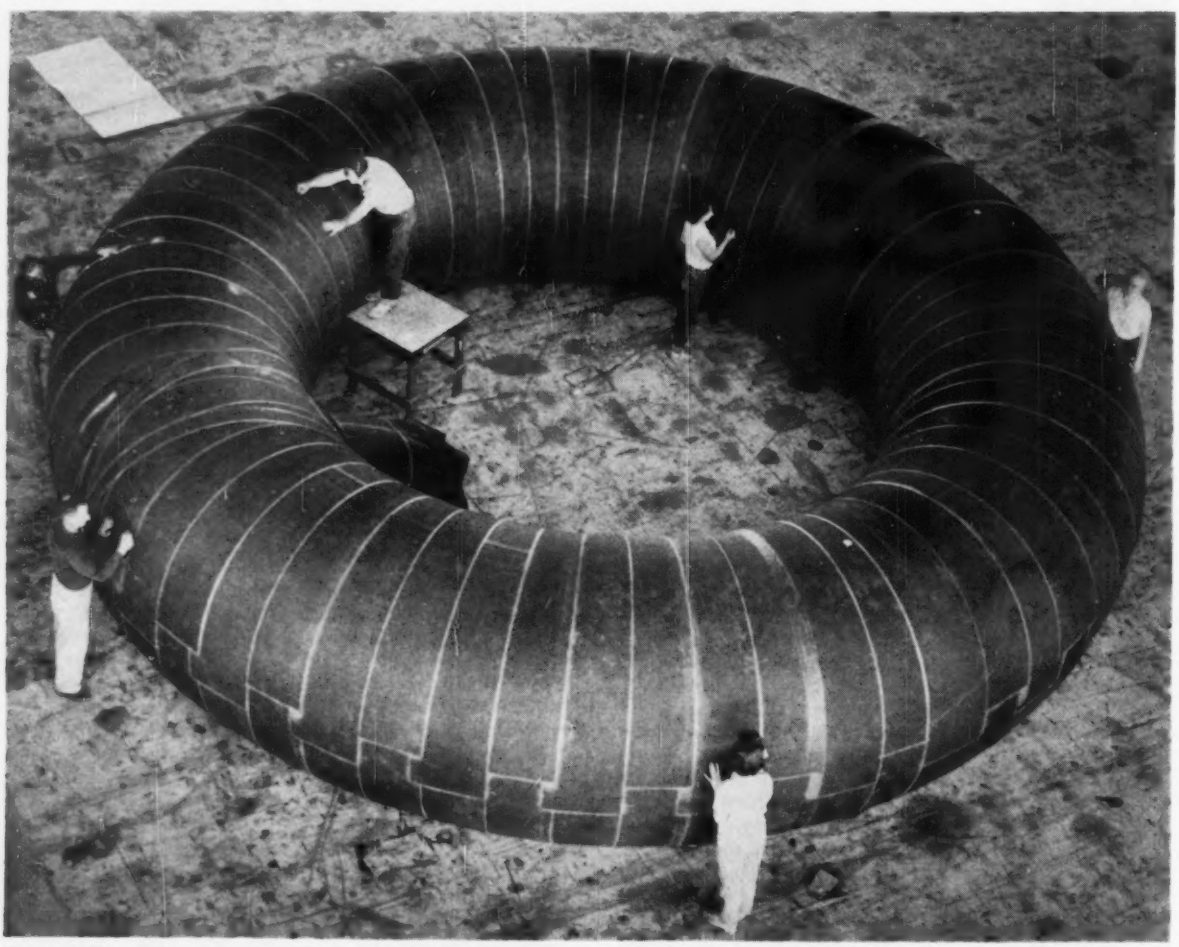
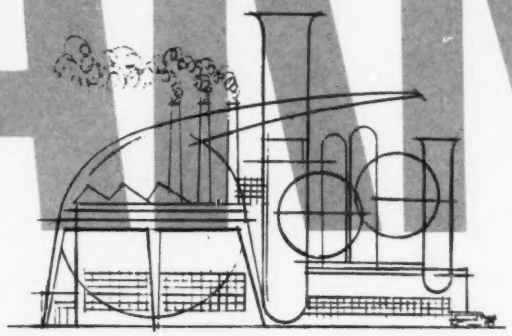


FAR OUT—This experimental inflatable space station is made of a special fabric. It is expected that the tube could house one or more persons in outer space after being rocketed into orbit

BEAUNIT YARNS



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Under the leadership of veteran millman, Ellis Leach, a long-established, long successful textile outfit has found the secret of renewing its youth

The rising star of Collins & Aikman

Ellis Leach

By Jerome Campbell,
EDITOR, MODERN TEXTILES MAGAZINE

AMONG TEXTILE INSIDERS today there is a widely prevalent opinion that Collins & Aikman, a firm whose antecedents go back 118 years, has a bright future ahead of it. And the feeling that Collins & Aikman is an outfit to watch was borne out recently by the announcement that the company, long a consistently profitable operation, will soon split its shares two for one.

Collins & Aikman, whose sales last year were $65 million, has attained its present highly regarded position largely because it has brought off with extraordinary success the difficult feat of moving from heavy dependence on one specialized product into a variety of products for a variety of markets.

For many years as much as 85% of Collins & Aikman's sales were derived from pile fabrics for the auto industry. But as everyone knows, starting in 1950 or thereabouts, the auto industry discovered the existence of fashion and the importance of women as decision makers in auto sales. From their traditional use of wool pile cloths as interior fabrics, the auto makers went in for a wildly unpredictable variety of materials.

This upheaval in auto interior styling made it imperative that Collins & Aikman add a few more strings to its bow; or to change the metaphor, find additional baskets for its eggs. This has been done so successfully that today, while still a specialist in auto fabrics, Collins & Aikman has remarkably diversified its line of products. It is not so much that it loves Detroit less, but that it has found the time and stamina to woo other loves with gratifying acceptance. In this connection, Ellis Leach, chairman of the board, was able to remark recently that some 40% of the company's sales are now products introduced since 1950.

Coinciding with its successful shift from almost complete dependence on the auto market, Collins & Aikman has successfully executed in recent years another crucial and perilous change. It moved its manufacturing operations from plants located mainly in the North to newer, more efficient plants in the textile South.

The reshaping of Collins & Aikman for profitable survival and growth in the new more rigorous climate for the textile industry that set in during the 1950's took place under the leadership of Ellis Leach, a cheerful, resilient millman with a rare accumulation of experience in textile manufacturing. He joined Collins & Aikman late in 1956, starting at the top as president. He came to this position because C & A's directors wanted a strong, experienced

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Technical talks at colorists' meeting cover wide spectrum of research gains

Staff Prepared

REPRESENTATIVES of the dyeing and finishing industry assembled in Buffalo, N. Y. late in September to see and hear the latest developments in the wet processing of textiles. The occasion was the 1961 National Convention of the American Association of Textile Chemists and Colorists assembled at the Statler Hilton Hotel to mark the Association's 40th anniversary.

The technical programs were highlighted by the presentation of papers delivered by industry representatives. A number of exhibits was again staged for those seeking first hand information on instruments, machinery, dyestuffs and chemicals.

Theme of this year's convention was "International Textile Technology—Key to Progress". The international flavor was supported by the important part played by the delegation from the Canadian Association of Textile Colourists and Chemists who took over many official duties in connection with the 1961 assemblage. William H. Leyking, Allied Chemical Corp., National Aniline Division, was chairman of the convention while Nicholas J. Mohoruk, Hamilton Cotton Co. Hamilton, Ontario, was Vice Chairman.

Fred Fortess, Manager, Dyeing and Finishing Laboratories, Celanese Fibers Co., received the AATCC Olney Medal. Arthur R. Thompson, recently retired from the Ciba Co., received the Harold C. Chapin Service Award. The award for the best technical paper went to Frank J. Rizzo of the Quartermaster Research and Engineering Command, Natick, Mass. for a paper written with Alvin O. Ramsley on a new color-measuring instrument. The Awards Luncheon was addressed by New York Governor Nelson A. Rockefeller.

Following are summaries of some of the technical papers given during the three-day convention:

A Carbamate Finish for Wrinkle-Resistant and Wash-Wear Cottons

R. L. Arceneaux, J. G. Frick, Jr., J. D. Reid and G. A. Gautreaux
Southern Regional Research Laboratory, U.S. Dept. of Agriculture

A NEW CLASS of finishing agents with good all round wash-wear properties for cotton fabrics has been found. It is an inexpensive group of cross-linking agents prepared from urethane and formaldehyde. It should have good resistance to chlorine damage even after many launderings. In addition, the new finish is expected to be very durable in comparison with other nitrogenous finishes, particularly because of its high resistance to acids and laundry sours.

It is applied to the fabric by the pad-dry-cure method at 160°C. during curing. Treated fabrics do not show yellowing or discoloration in the scorch test. When the treatment is modified by including an emulsified polyethylene softener and 10 per cent excess formaldehyde, tearing strength and crease recovery angles are increased which bring the resulting fabrics up from a 4 rating on the AATCC wash-wear test before treatment to a 5 rating, while only small adverse effects are noted on other properties. The excess formaldehyde however, increases the amount of gaseous formaldehyde released on drying.

Radiation Induced Graft Copolymerization of Styrene and Nylon

Sharda DasGupta, J. T. Slobodian and D. L. Rowat,
Atomic Energy of Canada, Ltd.

WITH THE INTENTION of improving certain useful properties of nylon fabrics, graft copolymers of styrene and nylon have been prepared under the influence of gamma radiation by both simultaneous and pre-irradiation techniques. The influence of many variables, such as presence of water, monomer concentration, post-irradiation soaking in monomer, oxidants, homopolymer formation and the properties of the final products were studied and optimum conditions for obtaining various grades of fabrics established. The properties of the products were determined and found to be superior in many respects to similar, commercially available, water resistant fabrics.

Two types of nylon fabrics were used in the experiment—one a fine 192 x 96 fabric and the other a coarser 80 x 68 fabric. Irrespective of the type of fabric, the breaking strengths improved greatly on grafting. The percentage increase in weight due to true grafting is dependent on the texture of the fabric. This is to be expected since the amount of grafting should be a function of the active surface available for reaction.

(Continued on page 30)

A little KALEX prevents a lot of metal contamination damage

Metal contamination entering your processing solutions from equipment or process water cannot be seen, but altered dye shades, discolored whites, excessive crocking, iron damage in bleaching, weakened action of your detergents and finishing chemicals caused by metal contamination are all too evident and costly.

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Digests of AATCC Meeting Papers

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The amount of true grafting was found to be proportional to radiation dosage over wide ranges, e.g., 9.6% weight increase at 3.5×10^5 rads, 62.2% at 2×10^6 rads. Small amounts of water were found to play an important role in the grafting process. Water spray, water resistance-static head penetration and tensile tests reveal considerable fabric improvement with grafts even as low as 10% weight increase; for example warp tensile strength increased as much as 30% while weft had a 70% increase.

Under proper conditions the weight increase due to grafting can be more than 100%. The physical properties of grafted nylon are far superior to the original fabric and other surface-coated fabrics, as regards tensile strength, water resistance and other properties important for outdoor use. Weatherometer tests indicate that the grafted nylon fabrics are useful for longer periods than even heavier fabrics such as army ducks. The procedures for obtaining grafted nylon are such that methods of large scale production can easily be adopted.

Wool Fabric Stabilization by Interfacial Polymerization

W. Fong, R. E. Whitfield, L. A. Miller, A. H. Brown,
Western Regional Research Laboratory
U.S. Dept. of Agriculture

RECENT WORK at the Western Regional Research Laboratory has shown that wool fabrics can be made shrink resistant by formation of a thin, uniform, resin film on the fiber surfaces, applied by a technique known as interfacial polymerization. The resin is formed by dipping the fabric into an aqueous solution of a diamine, removing the excess solution, dipping the fabric into a solution of a diacid chloride in an organic solvent, removing the excess solution, and washing the fabric to remove unreacted reagents and solvent and to improve the hand. The treatment can be applied continuously to full-width fabrics by use of two padders in tandem.

The identity and amount of resin deposited upon the fabric are key factors in providing shrink resistance. The most effective resin found to date is a polyamide formed from hexamethylene diamine and sebacoyl chloride. Using the padding method of treatment, woven woolen fabrics can be stabilized against shrinkage by application of 0.5 to 1% of polyamide. Woven worsteds require at least 2% of polyamide for stabilization. Knitted worsted fabrics require from 1 to 2% of polyamide for good resistance to shrinkage. Fabric construction and wool fineness affect the amount of polyamide needed to stabilize the fabric.

The important process variables in applying the polyamide to fabrics by padding are: reagent temperature, treatment time, load on the padder rolls, and wet pickup of the diamine solution by the fabric. Maintaining the diamine solution at approximately 110° F. is extremely important.

The polyamide treatment generally improves fabric properties. Tensile strength, abrasion resistance, and pilling resistance are measurably improved. Tear strength is reduced only slightly. Normal finishing procedures can be used after treatment.

Application of UV Absorbers to Synthetic Fibers

Dr. A. F. Strobel
General Aniline & Film Corp.

THE FASTNESS to light of level dyeing dyes on nylon, Dacron and Orlon is distinctly improved by co-dyeing with certain UV absorbers having appreciable absorption in the 350-390 mu region. Best performance is achieved by co-dyeing the dye with absorber in the presence of a suitable carrier. The carbon arc was used in these determinations. Improvement in light-fastness of acid colors on nylon is also achieved by co-dyeing with UV absorbers, although the improvement is not as great as with the level-dyeing (e.g., Celliton & Genacryl) colors.

The effectiveness of UV absorbers in improving the fastness to light of level-dyeing dyes (such as the Celliton and Genacryl types) on Dacron is distinctly increased using biphenyl as carrier. On nylon, biphenyl employed as carrier does not appreciably increase the effectiveness of UV absorbers in improving the lightfastness of Celliton and Genacryl dyes.

Spun nylon challis showed better penetration of dyes than did nylon filament taffeta. A correspondingly greater improvement in lightfastness of certain wool colors resulted from employing UV absorbers on spun nylon over nylon taffeta. With other level-dyeing wool colors applied to nylon, however, no improvement in lightfastness was obtained using UV absorbers.

Washfastness of the ultraviolet absorbers is superior on Dacron 64 to their washfastness on nylon.

Water Conservation and Pollution Abatement

R. Hobart Souther
Research Consultant

INDUSTRY EVERYWHERE recognizes the importance of water conservation and the problems which must be solved if we are to have enough clean water to meet the essential needs of life. The textile industry, like all other industries, is contributing more and more research to solve the problems of pollution abatement and fulfill its obligation to The National Credo promulgated at the National Conference on Water Pollution, by conserving water, using it and returning it to stream in good condition for other legitimate users.

Experimental research data on the new prolonged bioaeration process, developed for Haw River, N. C. and adapted for textile waste treatment by Aileen, Burlington, Cone, Canton, and Chicopee plants indicate many varied textile wastes can be treated very satisfactorily, efficiently and economically by this method. Construction and maintenance costs on the new bio-aeration or aerobic process range about 1/6

(Continued on page 32)

NOW YOU CAN STRIP REACTIVE DYES!

- safely
- quickly
- economically

After using Stripper T S, cottons can be redyed brilliant shades without any appreciable effect on the tensile strength of the fiber.

Reactive dyes can be stripped to the required shade within 15 to 30 minutes, depending on the depth of the original color.

Besides preserving the tensile strength, Stripper T S does not require the use of an acid or other accelerator to obtain optimum results in removal of color. Also, the fabric retains its original hand, with no harshening effect.

STRIPPER TS

Stripper T S has been used for many years for stripping acid, direct and developed dyes.

Additional uses: as a reducing agent for cleaning out and removing color from dye tubs and kettles, and as a stripping agent for cotton nets and bags in which hosiery has been dyed.

Write for Technical Bulletin on Stripper T S

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AATCC Digests

(Continued from page 30)

to ½ that of conventional trickling filter and activated sludge or combined processes.

Starch desizing wastes can be treated in plant with construction cost less than $25.00 per lb. of BOD per day, compared with cost of $100.00 per lb. BOD per day in conventional plant. An-aerobic digestion of starch desizing waste is more expensive and usually effluent requires additional treatment.

Experimental data thus far indicates starch, desizing waste may be satisfactorily loaded into plant designed for bio-aeration treatment of finishing and dye wastes without increasing the plant size or treatment costs over starch substitutes.

Optimum Dyeing and Finishing of Specific Polyester Blend Fabrics

R. E. Lacy, V. S. Salvin, W. A. Schoeneberg
Celanese Corp. of America

THE VERSATILITY of the polyester fiber, based on polyethylene glycol terephthalate, has led to the creation of a wide variety of new and unique fabrics of improved end use performance. Selected fabrics, consisting of blends of Fortrel polyester fiber with cotton or wool, were used to illustrate dyeing and finishing procedures aimed at optimum color fastness, serviceability and aesthetic properties.

Optimum balanced color fastness can only be achieved by critical selection of disperse dyes. This is especially illustrated where yarn dyeing of polyester and cotton blends must have adequate sublimation resistance properties where heat treatment or resin curing is required in the yarn-dyed fabrics containing white areas.

In polyester blends with wool, reduced staining of the wool by disperse dyes requires careful selection of dyestuff structure and the use of effective detergents in the dyebath as well as for the afterscour.

Improved procedures for mechanically finishing polyester/wool blends in soft textured fabrics can significantly improve the pilling resistance of these fabrics. Particular emphasis must be placed on shearing and singeing of the fabrics prior to fulling or milling.

Unusual hands and aesthetic appeal can be imparted to polyester-cotton blended fabrics through a combination of alkali treatment, embossing or hot calendering, and choice of selected crosslinking reactants.

Economical Utilization of Caustic Soda in Cotton Bleacheries

W. R. Steele
Solvay Process Division,
Allied Chemical Corp.

IN MANY COTTON BLEACHERIES, a major portion of the purchased caustic soda is still wasted. If the caustic content of the used liquor is not too low, it can be evaporated, purified and reused, thereby reducing costs and alleviating stream pollution.

A caustic utilization survey should first be made. The technique has been evolved over a period of years by Solvay. Each caustic-consuming operation is analyzed to determine respectively the quantity of caustic consumed, available for recovery, recovered, reused and wasted. The survey report includes a complete cost evaluation.

Solvay has developed procedures for increasing the quantity and concentration of the recovered liquor to permit reusage of the maximum amount "as is" to minimize evaporation and purification costs. Impurities are concentrated during evaporation. Therefore filtration is usually necessary. In some cases, dialysis may be required to reduce soluble impurity content. Solvay has developed a suitable dialytic process and equipment for performing it.

Recovery and reutilization of caustic soda usually reduces the causticity of bleachery waste, but sometimes not enough. Solvay has also developed a patented flue gas process for reducing both causticity and B.O.D.

While economical utilization of caustic soda may involve recovery, evaporation, filtration, dialysis and flue gas treatment of the final waste, the annual return on investment commonly exceeds 50%. To date, approximately 70 caustic surveys have been made by Solvay.

A New Concept in Dyeing Synthetic and Natural Fibers and Blends

Charles B. Ordway
Burlington Engineering Sales Co.

BURLINGTON ENGINEERING CO. developed a new concept in the dyeing of synthetic and natural fibers and blends in twin pressure becks (high and low pressure).

The high pressure becks operate at 20 pounds pressure and temperatures up to 250°F. while the low pressure becks operate at 28 ounces of pressure and temperatures up to 218°F.

Over the past year these twin pressure becks have been operating on regular plant production on a wide range of fabrics as noted since the "bugs" have been eliminated and new fabric constructions are constantly being added for production operation.

The synthetic and natural fibers and blends covers a wide range of fabrics now being processed on standard types of enclosed dye becks at atmospheric (205-210°F.) temperatures whereas the pressurization of becks gives these advantages on dyeing operations:

(1) All elements of dyeing process uniform and under control in all parts of these pressure becks.
(2) Improves color fastness and clearness of dyed shade.
(3) Improves levelness and penetration of dyed fabrics.
(4) Increases range of fabric constructions possible to dye in "rope" form.
(5) Reduction in time of dyeing cycle, creates savings.
(6) Reduction in dyestuff and chemical carriers.
(7) Reduction in "reworks" and "seconds" as well as salvaging off-quality dye lots due to streaks, cracks and blotches.

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Chromspun, Estron, Verel and Kodel are Eastman fiber trademarks

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EASTMAN CHEMICAL PRODUCTS, INC., *subsidiary of Eastman Kodak Company,* KINGSPORT, TENNESSEE

AATCC Digests

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Advantages gained from heavy sealed constructed pressure becks on plant operation are:

(1) Greater ratio of formulae duplication over standard enclosed type becks.
(2) Longer life of dye becks and reduced maintenance costs.
(3) Load capacity, floor space and electric power requirements similar to standard enclosed becks of comparable rated capacity.
(4) Special protection devices for protection of operator (high importance).
(5) Steam consumption reduced.
(6) Water consumption reduced. (All cooling water reclaimed).
(7) The sealed pressure beck helps to contain vapors and fumes:
    (a) Increases ranges of usable chemicals and dyes.
    (b) Reduces initial building costs and operating expense.
    (c) Helps to eliminate corrosion on ventilating and auxiliary equipment.
    (d) These pressure becks may be insulated which would improve working conditions for operatives and fellow workers plus other operating costs.

Survey of Australian Commonwealth Scientific and Industrial Research Organization

Dr. J. R. McPhee
C.S.I.R.O., Division of Textile Industry

THE AUSTRALIAN C.S.I.R.O. is a government-sponsored research organization consisting of some 30 divisions and sections. Laboratories have been established in different parts of the country, whereever facilities, contacts and other conditions are best suited for the particular type of work carried out. Total staff is just over 4,000, of whom about 2,500 are directly engaged on scientific work.

The research programs vary from fundamental chemistry, physics, mathematics and biology to industrial technology of direct importance to Australia's growing secondary industries. Much attention is given to the breeding, physiology and nutrition of animals, especially cattle and sheep, and to all aspects of the primary industries.

Continuous Wool Dyeing by the Cibaphasol Process

Dr. Karl Menzi,
Ciba Ltd., Basle

SOME PHYSICAL PHENOMENA of the continuous dyeing of wool by the coacervation principle is explained with the aid of photomicrographs and movie-films. The possibilities and limits of the formation of the two-phase system is dealt with in particular. A special chapter is devoted to the processes taking place during the steaming operation, i.e. the fixing mechanism.

As a result of the laboratory and bulk working trials carried out so far, some possibilities of application with regard to suitable equipment for Ciba's Cibaphasol Dyeing Process is discussed. The economy of the Cibaphasol Process is also explained by means of examples of different dyestuff groups in comparison with conventional methods.

Imports—and Your Job

C. K. Black
The Du Pont Co.

THE WRITER ADVOCATES selective security tariffs, a policy proposed by the Synthetic Organic Chemical Manufacturing Association. The average tariff on all goods shipped into this country (including those coming in tariff free) is now about 5%. While comparisons are difficult due to the various methods of keeping statistics, it appears that of 43 major trading countries only seven have lower average tariffs than the United States. We are a low tariff country. This statement is emphasized since many free trade proponents imply that we have a high tariff barrier. Average wage rates including fringe benefits in the chemical industry which supplies dyes, finishing agents and other textile auxiliaries are as follows:

Japan	.38
Italy	.57
France	.90
Germany	.90
England	.86
U.S.A.	2.85

With tax situations which are often more favorable than ours, it is easy to see that we can be undersold not only in world markets but at home as well.

The Administration appears to be pointing to a tariff reduction era. The present trade agreements act expires in June 1962. Indications are that the President will ask for authority to decrease or eliminate tariffs on an across-the-board basis. Industries harmed by imports would be subsidized by business loans, retraining of employees for other jobs, extended unemployment payments, etc.

This seems a poor and expensive solution to a problem that could be solved by the maintenance of adequate selective tariffs or quotas.

Fluorescent Whitening Agents in Wash-Wear Finishing of Cotton

R. M. Reinhardt, T. W. Fenner, J. Reid
Southern Regional Research Laboratory
M. S. Furry and Mary Walsh
Clothing and Housing Research Division
U.S. Dept. of Agriculture

WE HAVE INVESTIGATED the use of fluorescent whitening agents in the wash-wear finishing of cotton fabrics. Three processing techniques for applying the whitener were used. Applications prior to the crosslinking treatment, after the crosslinking treatment, and with the crosslinking agent in the same pad bath were studied. Eight fluorescent whitening agents and two crosslinking agents were included.

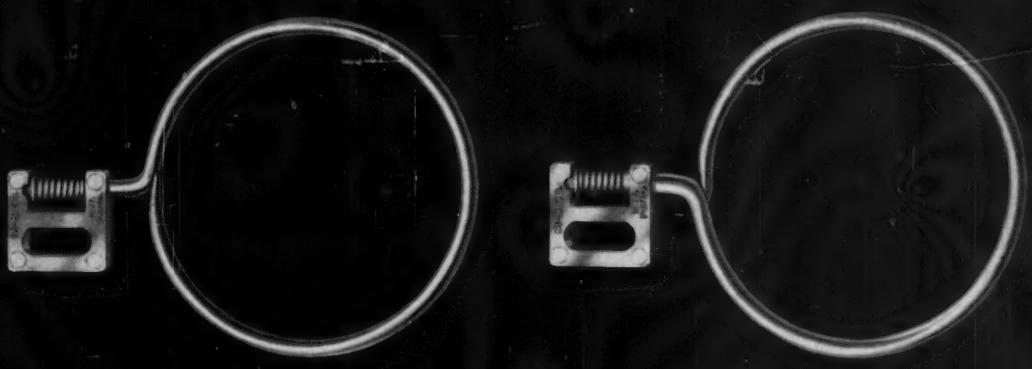
Color measurements indicating the whitening effects produced in the fabric by the different finishing treatments were made with ultra-violet radiation either included or excluded. Durability of these whitening effects to various types of laundering was determined. Any changes in the fabric's resistance to wrinkling and susceptibility to chlorine and light damage due to the treatments also were noted.

(Continued on page 66)

MACHINERY and EQUIPMENT SECTION

NEW... M-B *Permanently Aligned Reversible* BALLOON CONTROL RING

DEVELOPED BY MITCHELL-BISSELL CO.—PATENT PENDING



FROM THIS — *Just Turn it* — TO THIS
TO REVERSE THE TWIST

No Costly Downtime for Handling and Realignment

This new Balloon Control Ring is a real time- and cost-saver in twisting and spinning operations. Once properly positioned, it can be instantly reversed without realignment. No need for extended downtime while the ring is loosened, reversed, tightened and re-positioned . . . a costly procedure required with other rings. The spring-tensioned holder or base unit is of plain, durable design and construction, assuring long, trouble-free service. This part is made of die-cast aluminum alloy, while all other parts are stainless steel. The ring itself is electro polished to a smooth, bright finish. Rings can be furnished in most standard or any special diameters.

Write for samples or ask for our representative to call.

Mitchell-Bissell also makes a complete line of one-piece wire Balloon Control Rings with a reputation for quality and economy.

MITCHELL-BISSELL CO.

TRENTON, NEW JERSEY

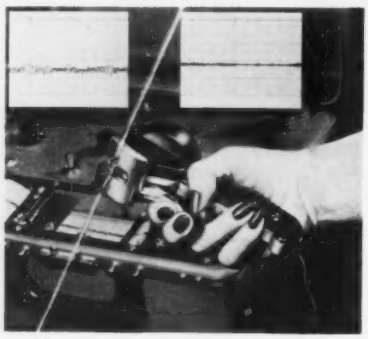
EST. 1882

Southern Representative: HOLT ASSOCIATES, INC., Greensboro, N. C.

NEW Equipment Machinery

Tension Recorder

An electronic tension recorder to show and record tension and its changes during spinning, twisting and other yarn processes, has been added by Tensitron, Inc., to its line of tension meters. The new instrument is said to make possible, for the first time, objective tension measurements during yarn spinning without breaking the roving, by using a micro-meter



fine adjustment for the sensing unit. A magnetic base fastens the transducer to the frame. The machine registers tension changes not only during the traverse but proves also the long-time tension variations when the yarn builds up on a bobbin, pirn or package, or is pulled off same. *For further information write the editors.*

Synthetic Fiber Felts

Synthetic fiber felts of polypropylene, Teflon, Dacron, Dynel, rayon viscose, Orlon and Nylon, available in several types of material constructions ranging from pad types to high density filter fabrics, are described in a new 8-page booklet issued by American Felt Co. Technical Bulletin No. 4-61 contains a general description and typical uses for six categories of synthetic fiber felts, including data on general, physical, chemical and mechanical properties. *For copies of the bulletin write the editors.*

Shrinkage Marker

A new and improved stamping device for dimensional change specimens is being marketed by Better Fabrics Testing Bureau, Inc. The instrument consists of a pair of marking dies precision set in an aluminum space bar equipped with convenient handles. The instrument is furnished with sets of covered stamp pads properly mounted on a plate; conventional marking inks are used in the stamp pads. *For further information write the editors.*

Draper Filling Cams

"V" type filling cams (split), developed by Draper Corp., are available for most Draper loom models. The new cams are said to insure alignment of parts at all times, while providing smoother, more positive cam action with reduced wear on filling motion parts. *For further information write the editors.*

Suspended-Skein Dyeing

Klauder Weldon Giles Machine Co. reports high bulk Orlon and other manmade or natural yarns may now be dyed in skein form with improved penetration in its new duo-flo machine. Especially developed for yarns where controlled shrinkage is a factor, these versatile machines are equally applicable to all types of yarn. With capacities ranging from 200 to 400 pounds, the suspended-skein type dyeing machine is available in various models to meet specific dyehouse requirements. All stainless steel construction and new curved tub design combine to provide maximum service life.

The company also is offering a new dyehouse box truck featuring ease of maneuverability and full protection of garments. The standard size, made of all stainless steel with reinforced bottom, measures 32-inches wide, 54-inches long by 27- inches deep. *For further information concerning these products, write the editors.*

Laboratory Padders

Birch Brothers, Inc., has issued a brochure describing its Minipad line of laboratory padders. The literature illustrates and lists features of 2-roll and 3-roll Minipads, including standard and deluxe laboratory models. *For further information write the editors.*

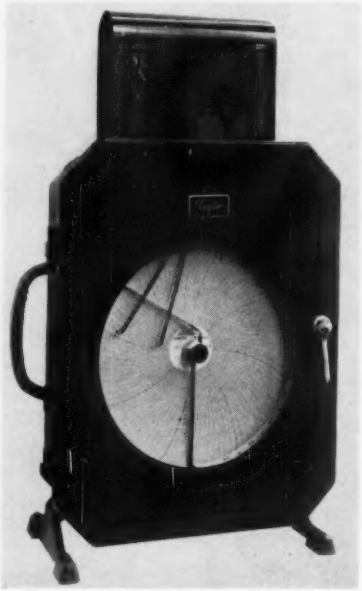
Resist Printing Improvement

In a folder which is an appendix to Pattern Card No. 1426, "Drimarene-Z, Practical Experience," Sandoz, Inc., describes a resist printing process said to give strongly contrasting half-tone shades. Glucose of Lyogen DK are the resisting agents used.

Use of Drimarene dyestuffs for dyeing cotton and regenerated cellulosic fibers by the pad-roll process is described in an appendix to Sandoz shade card No. 1400. *For copies of both folders write the editors.*

Humidity Recorder

Taylor Instrument Companies has developed a direct-reading relative humidity recorder. Described as moderately priced, the instrument is available in four models, providing for such fea-



tures as hand portability or wall mounting, and for recording of dry-bulb temperature on the same chart with relative humidity. The nylon actuating elements are mounted in such a manner that exceptional accuracy is provided and re-zeroing of the instrument is seldom necessary. *For further information write the editors.*

Improved Loom Parts

H. F. Livermore Corp. has published the first of two new catalogs on HFL Improved Loom Parts. The catalog is designed to be individually assembled to meet each customer's replacement requirements. The entire catalog comprises four main divisions, containing information on loom parts for four different groups of loom types, plus a supplies section applicable to all loom models.

Concentrated Softener

Avitex Y, a new cationic softener in concentrated liquid form, has been developed by Du Pont's Dyes and Chemicals Division. The new compound is reported effective on all types of fibers. In the case of hydrophobic synthetic fibers it also provides moderate antistatic protection. The new softener, Du Pont said, causes only slight changes in the shade of selected vat and fast-to-light direct dyes, and does not result in any serious reduction in lightfastness. *For further information write the editors.*

John Fancourt speaks at dedication ceremonies

Fancourt's big new southern plant

A NEW TEXTILE CHEMICAL manufacturing plant was opened last month in Greensboro, N. C. by W. F. Fancourt Co. The new building houses company headquarters and manufacturing facilities and will enable Fancourt to double its output of chemical specialties.

Founded in Philadelphia 57 years ago by Walter F. Fancourt, Jr., the firm's main emphasis now has been transferred to Greensboro where fast shipments can be made to nearby customers in the heavily populated textile producing belt. However, a sales office is being maintained in Philadelphia and for the time being some manufacturing will continue to be done there.

The movement is logical in view of the fact that hosiery, whose manufacturing is heavily centered in North Carolina, has played a dominant part in the Fancourt business and today represents the largest area of its activity although the firm is also active in the knitted and piece goods finishing industry. Fancourt opened a sales office in Greensboro in 1937, then shifted its southern headquarters to Burlington, N. C. Now back in Greensboro with a new $500,000 headquarters plant, the company reports that it has been able to improve its production methods. New methods of testing and advance production techniques are part of Fancourt's plan to increase service to the hosiery industry and other areas of textile manufacturing calling for new facilities and greater capacities.

The firm makes more than 80 products for various applications in dyeing and finishing. One of its more recent lines includes the Vibralon family of finishes for nylon hosiery. Included in this group are Vibralon Nydull, Vibralon Resin, Vibralon Nylonex and Vibralon Softener. The general line of products includes other softeners and finishes, scours, dyeing assistants and specialized products.

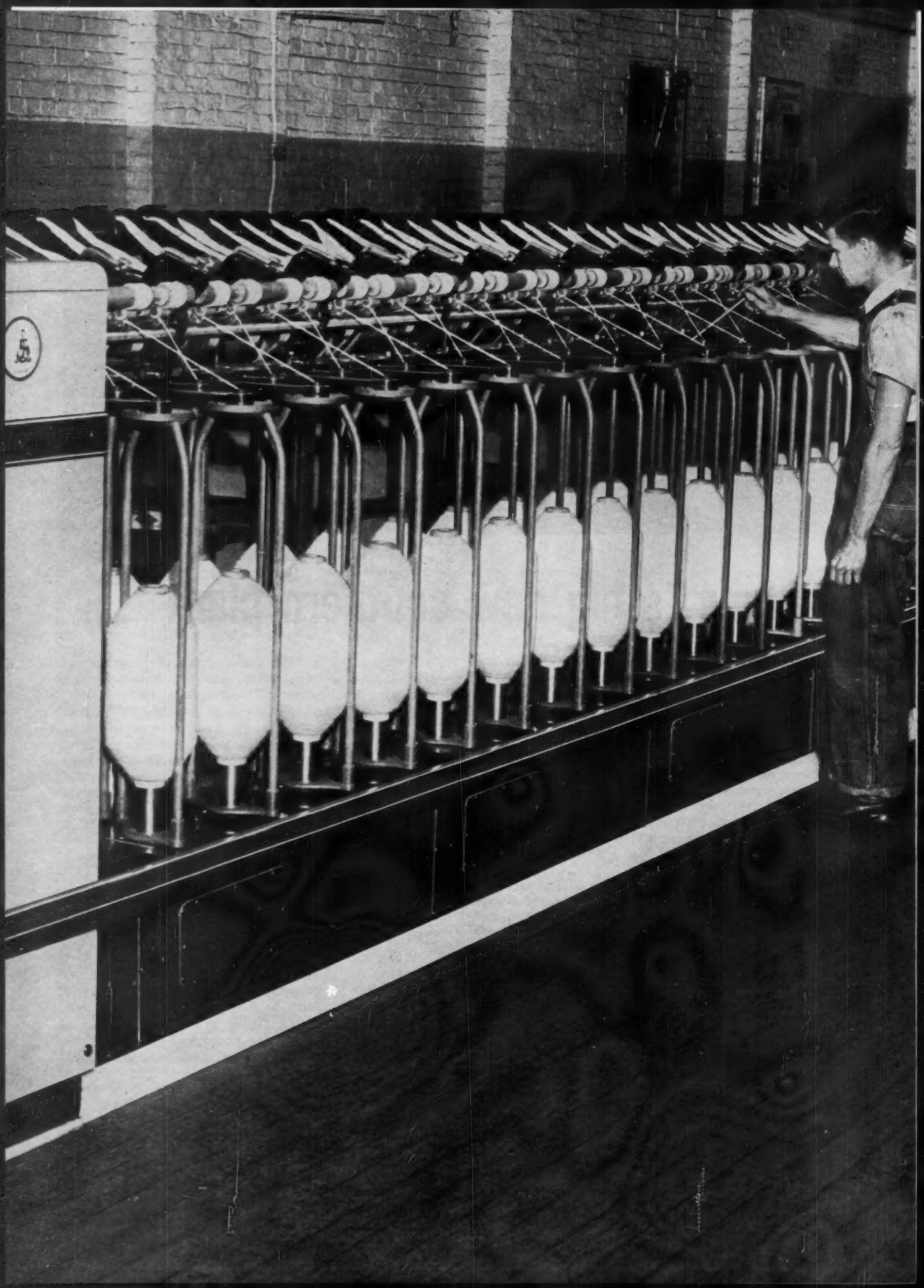
Ever since the company was founded in 1904 as an importer of olive oil for worsted spinning, emphasis has been on research, production and personal service. Today Fancourt produces finishes for over half the seamless hosiery manufacturers in the world. In addition to domestic operations, Fancourt is represented on an international basis by Chemtex Products, Inc., Toronto, Canada; by Paykel Bros. in Australia and New Zealand, and by A. M. Romero Corp. in the Caribbean and Central and South American areas.

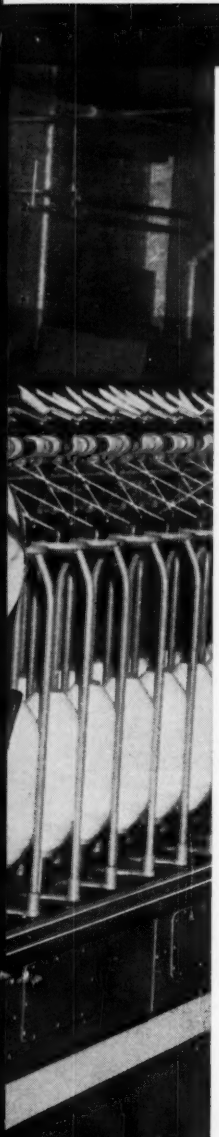
Officers whose headquarters are now in Greensboro are John L. Fancourt president, Thomas Lindley, v.p., Donald Loeber, office manager and Claude Wolff, chief chemist.

When the founder, Walter F. Fancourt, Jr., died in 1954, the presidency was assumed by his elder son, Walter F. Fancourt III. At his untimely death the next year, John L. Fancourt, the younger son, became president.

At the dedication of the new plant, three children of the president, cut a blue ribbon to mark the opening. On hand to welcome the Fancourt Co. were Bland W. Worley, president of the Greensboro Chamber of Commerce, and Greensboro Mayor David Schenck.

Commenting on the move, John Fancourt said "Our main job is troubleshooting, keeping abreast of product development which is as necessary to a chemical specialty firm as understanding consumer demand is to a mill."





Now 8 New Rovematic Frames Equal Output of 13 Standard Frames

After 135 years, a totally new roving frame concept, from Saco-Lowell: the Rovematic. The first major re-design of the roving frame since 1825, Rovematic operates easily and efficiently at 1200 R.P.M. maximum flyer speed or 350 R.P.M. maximum front roll (1⅛") speed, producing a 14" x 7" package of higher quality roving.

In 5 working days, a single 80-spindle Rovematic frame, utilizing FS-2 drafting system with Tru-Set weighting and producing 1.00 hank roving, consumes 30 bales of cotton. Rovematic's speed enables 8 such frames to do the work of 13 conventional machines. Frame for frame, Rovematic increases production an important 60%.

Change gears and adjusting mechanisms are located in the head-end cabinet and all major components run in an oil bath, which needs replenishing only at 2 to 3 year intervals. And Rovematic requires a minimum of cleaning, too! The heavy, cumbersome traversing carriage and many other traditional roving frame parts are eliminated. Rovematic flyers are dynamically balanced. Its spindles telescope for quick and easy doffing without removal of flyers.

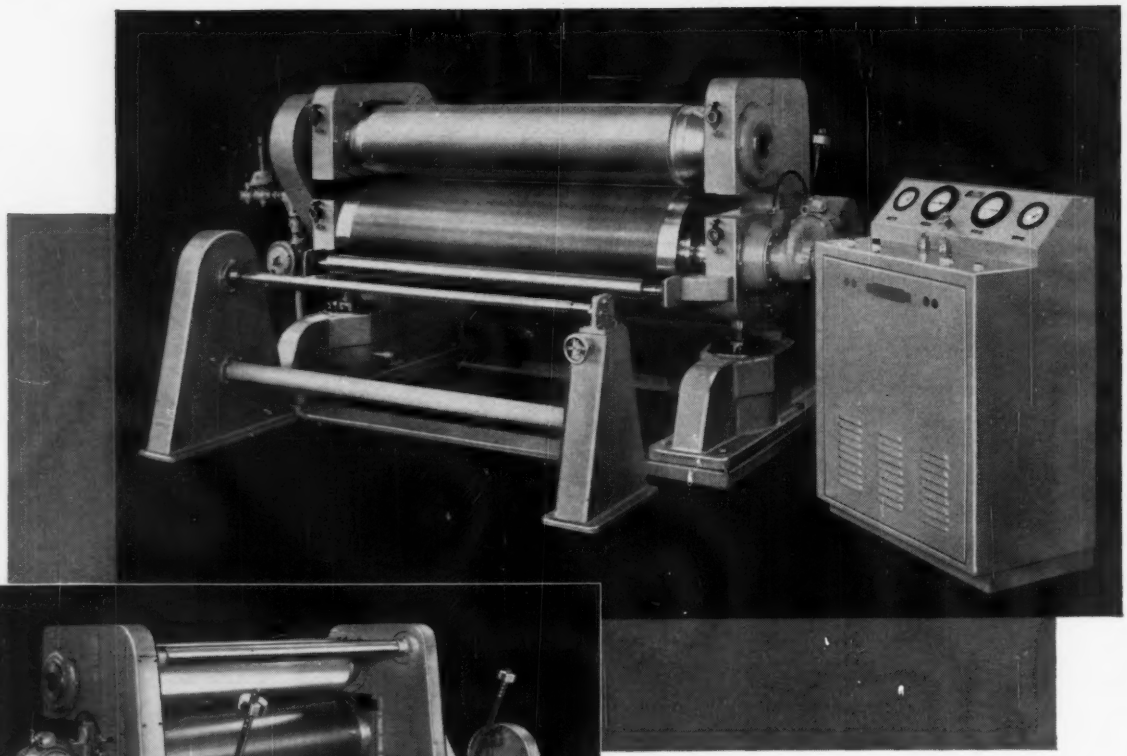
Traverse is gained by variation in relative speed of spindle components, so Rovematic has no cones or cone belts . . . no reversing shafts. Rovematic also builds the largest packages at the highest speeds yet attainable, without any problem of deflection or excessive wear.

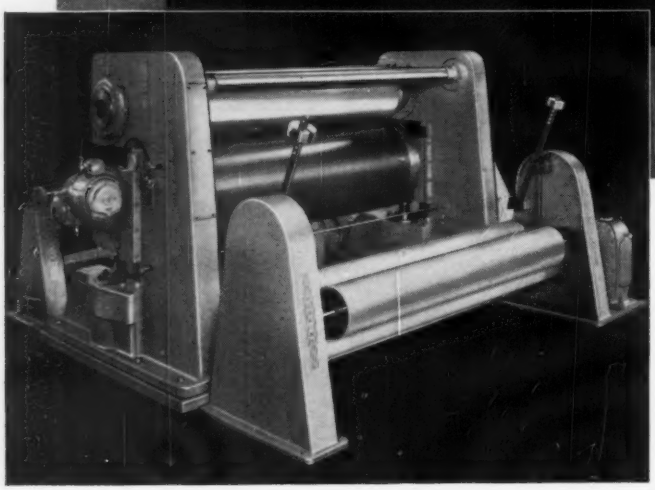
Lab-tested, mill-proven, Rovematic is not a dream for the future. Like all Saco-Lowell textile machinery, it's **built for better performance, backed by better service.** And it's ready to go to work now. Call in our nearest sales engineer today for complete details.

SACO-LOWELL SHOPS
TEXTILE MACHINERY DIVISION

EXECUTIVE OFFICES: DRAWER 2327, GREENVILLE, S.C.
SALES OFFICES: ATLANTA, GA.—805 PEACHTREE ST., N.E.
GREENVILLE, S.C.—P.O. Box 1698; CHARLOTTE, N.C.—P.O. Box 149;
GREENSBORO, N.C.—601 N. Elm St. Bldg.; SACO, MAINE—P.O. Box 230

Rovematic: the first totally new roving frame design in 135 years.





Outstanding Features

of this

PERKINS new design heavy-duty, 2-roll

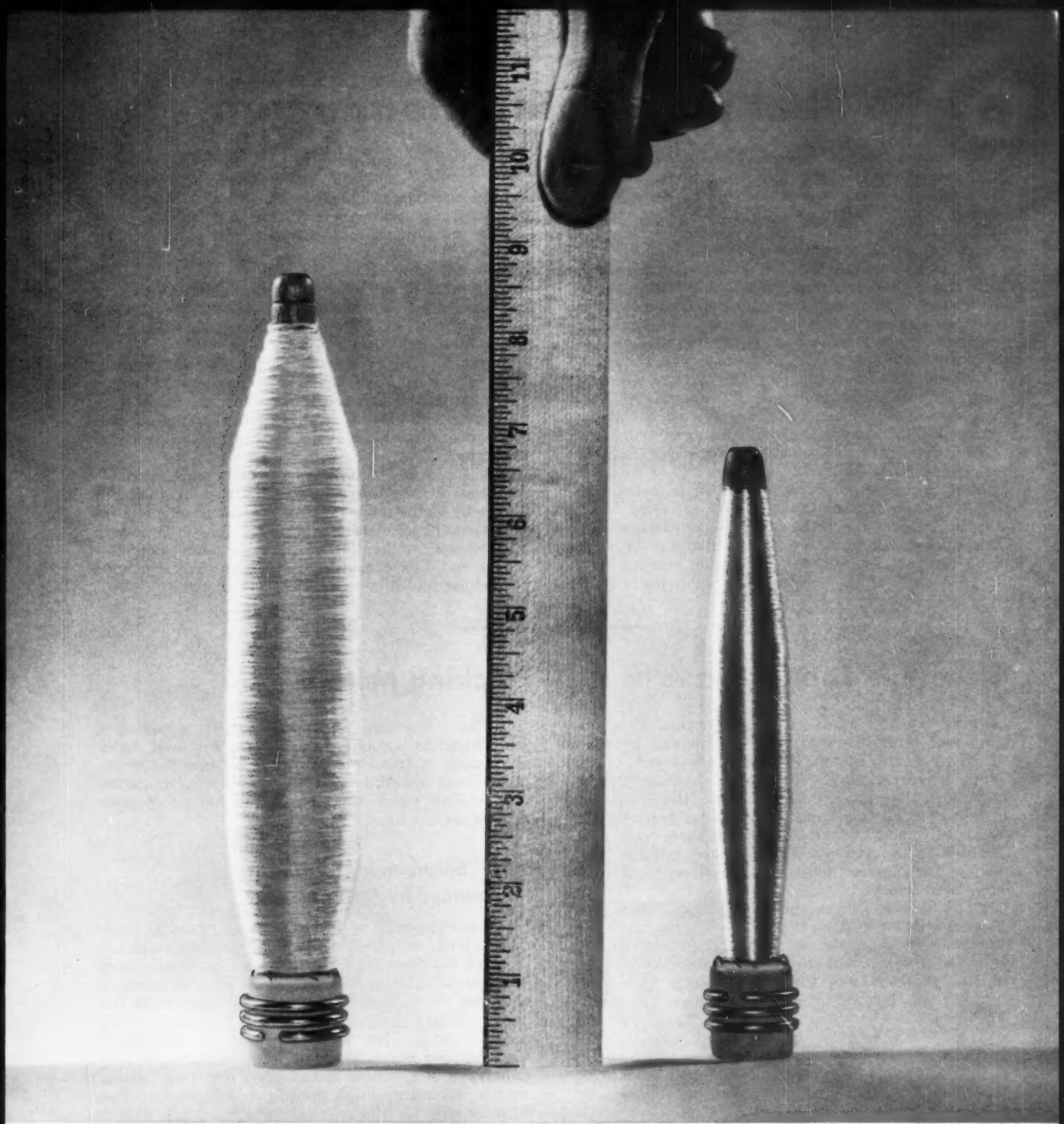
SCHREINER CALENDER

- Steel frames mounted on heavy steel base plate, facilitating installation in mill
- Top and bottom rolls equipped with self-aligning roller bearings mounted in heavy steel housings equipped with automatic lubrication of all bearings
- Special forged steel top roll of much larger diameter than regularly used in existing Schreiner Calenders
- All oil circulating lines and hydraulic oil lines installed inside of calender frames
- Normally requires less space than existing calenders
- Special hydraulic pressure unit with built-in controls and pressure gauges for ease of regulating pressures on each side of calender
- Easy installation and removal of calender rolls
- Adjustable let-off unit to control tension of cloth by air pressure — also special constant tension wind-up unit equipped with constant tension motor and electric controls
- New type gas heating unit for heating the top steel roll — this unit has constant temperature control by direct contact with one end of roll face
- Perkins special off-nip drive for bottom roll with built-in over-running clutch to keep bottom roll rotating when pressure is released or rolls separated — this unit is electrically operated by automatic control

B. F. PERKINS & SON, INC.

HOLYOKE, MASSACHUSETTS

Southern Representative: Hayes Textiles, Inc., P. O. Box 2135, Station A, Union Street, Spartanburg, S. C.



Now UNIFIL is made the way you want it!

By now it's no news to you that the Unifil® stirred up a revolution in weaving when it was first introduced. Because of the way it cuts the cost of weaving while it improves the quality of the fabric, thousands of these versatile loom winders are already in use! And now the Unifil loom winder is better than ever —made the way you want it for use with bobbins all the way from 6¾ inches to 8¾ inches. Look into the latest Unifil improvements and check the way they will change the pay-out picture in your mill. Just call your nearest Leesona Sales Engineer, or write LEESONA CORPORATION, Providence 1, Rhode Island. 1.42

LEESONA LEADS TO BETTER FABRICS

Olefin fiber pace gains momentum

POLYPROPYLENE FIBERS and yarns are expected to gain wider acceptance in a growing variety of fabric end uses as a result of a number of new deveopments in recent months. Hercules Powder Co. has completed a polypropylene fiber plant in Covington, Va. with an initial annual capacity of 12 million pounds.

At the same time, Enjay Chemical Co., a Division of Humble Oil & Refining Co., and J. P. Stevens & Co. have jointly purchased the National Plastic Products Co. in Odenton, Md. for the purpose of forming a nucleus for development of the polypropylene fiber operation.

Widespread interest in polypropylene fiber stems from its unusual combination of properties. So light that it actually floats, it provides greater coverage per pound than any other fiber; is strong, tough, and highly resistant to mechanical abuse and chemical attack.

The Hercules polypropylene fiber is being produced at the former Industrial Rayon Corp. nylon facility, which has been completely redesigned for this purpose. A fiber research center has been established by Hercules at Covington, occupying a large portion of the former IRC rayon plant there. Facilities have been built to perform all steps in fiber development from chemical research through fabric construction and end-use testing.

Hercules polypropylene fiber is available in three forms: continuous multifilament yarn, staple fiber, and tow. The fiber can be used for woven, nonwoven, tufted, and knitted fabrics.

Sales headquarters for Hercules Fiber Development Department are at 380 Madison Ave., New York City, with a recently opened branch office at 1214 Wachovia Bank Building, Charlotte, N.C.

Enjay and Stevens have been engaged for more than a year in a joint research project to develop the manufacture and utilization of textile fibers from polypropylene plastic. A pilot plant for this purpose is in operation at Stevens' Garfield, N.J. research laboratory.

The National Plastic Products Co.'s manufacturing facilities at Odenton, Md. will be used by the joint Company as the nucleus for development of the polypropylene fiber operation. National Plastic is now in commercial production of polypropylene monofilaments and this operation will be further expanded to include multifilaments, staple, and fibers.

Deep Pile Fabrics Made by New Flocking Method

AFTER YEARS OF RESEARCH it appears that the application of short fibers to various materials by electrostatic means has at last been developed to the point where it can be considered a major textile manufacturing process. In the past, the maximum length of flock that could be used has been limited to about 6 mm. Even at that length there have been limitations in both flock quality and adhesive. By a new German method, however, these limitations have been removed.

One German company, Vereinigte Glanzstoff-Fabriken A.G., has developed fine regular flocks in Perlon nylon and viscose rayon. These are treated to make them conductive and to prevent them from sticking together, so that the flocking process is extremely regular. Another German company, Farbenfabriken Bayer, A.G., of Leverkusen, has evolved new adhesives, and a third, Dr. Plate GmbH, is making Perlon flock.

Also there has been a big development in flocking equipment itself. This has been developed by Eloflock-Oberflachenveredlung, of Cologne-Braunsfeld, who have evolved new equipment capable of handling flocks up to 10 to 12 mm. long. The machine charges the flock to a potential of 80,000 to 110,000 volts, depending upon the type of flock being processed.

With this new equipment it is possible to produce at very high speeds—up to 268 meters per hour—materials with a dense, vertical pile of either viscose or Perlon. Cellulose triacetate is also suitable for use with this type of equipment.

Flocked materials made in Perlon (polyamide fiber) have a dense, extremely even pile which is not only resilient but also tough. Other materials electrostatically flocked include bonded fiber fabrics, which could be used for upholstery and slippers.

A "fur" has also been produced by applying a long flock to a non-woven fabric followed by a short flock of triacetate, which is fed into the material so that a double texture is produced, simulating natural furs which have long guard hairs to protect shorter base hairs.

New "Spunbonded" Nonwovens Announced by Du Pont

The development of a series of experimental products to be known as "spunbonded" materials was announced today by the Du Pont Co. Patent applications have been filed covering the process and the products obtained. These new structures are not woven and are produced through integration with synthetic fiber manufacturing. They can be made from a number of fiber-forming polymeric materials. Du Pont said certain types of the new spunbonded materials appear similar to conventional nonwoven fabrics but that entirely new technology is involved yielding unique tensile and tear properties. The combination of properties and aesthetics so far achieved lead Du Pont to believe that some of these products will be used initially as interlinings. Others are said to show promise as base materials for coating and impregnation. A program of trade development and market testing is under way to assess further the potential for these spunbonded materials.

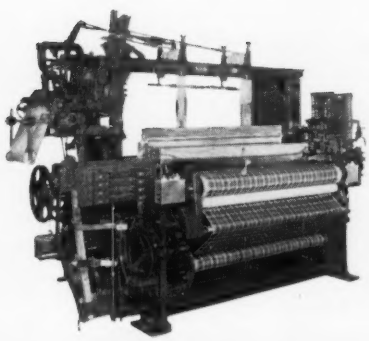
Du Pont said that, based on the results of this work, a decision will be made regarding commercialization. This may be more that two years away. Laboratory quantities of materials have been prepared at the Pioneering Research Laboratory at the company's Experimental Station near Wilmington and at its research laboratory at Richmond, Va.

MAINTENANCE COSTS on the C-7 Loom are reduced because many mechanical assemblies have been eliminated. Not only are there fewer critical adjustments to get out of order but also less replacement part expense and delay.

A few wires and switches have literally replaced 100 parts. Gone are most mechanical driving, shipping and protection levers and linkages, and much of the warp stop motion. Drive units are out in the open, easy to service.

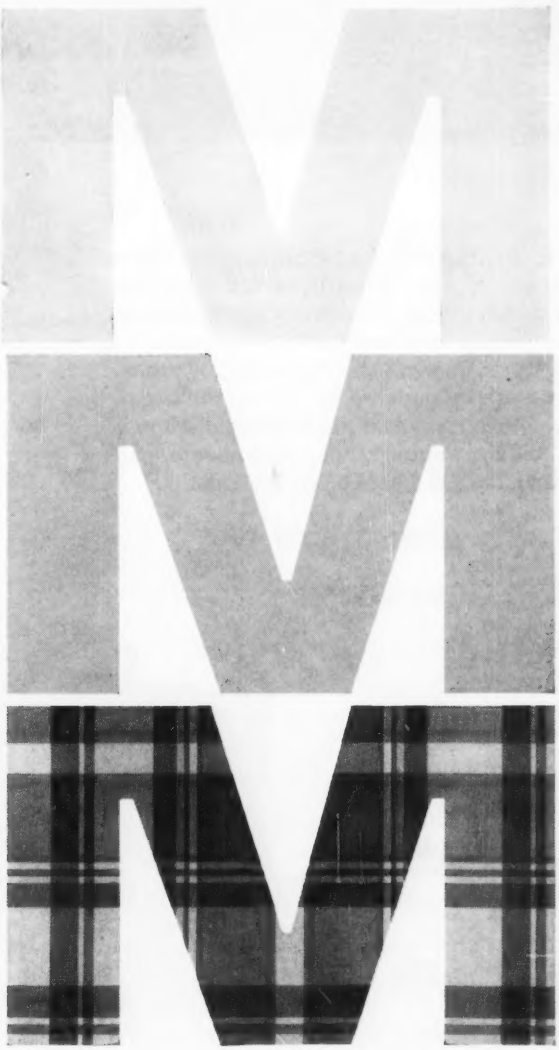
In addition, the C-7 operates more smoothly so that there is less wear and tear on the loom. Better binder control prolongs life of pick motion parts, and the electric brake allows soft stops—even protection stops—to reduce fixing.

Weavers, fixers and plant supervisors have been impressed that the C-7 requires so little down time for maintenance. Its potential savings make maintenance one of the most important of our six control areas. Write us if we might discuss it further with you, or if you'd like a reprint of any in this series you may have missed.



QSEWMT

QUALITY OF CLOTH · SPEED OF LOOM
EFFICIENCY · WEAVER ACCEPTANCE
MAINTENANCE COSTS · TRAINING TIME



CROMPTON & KNOWLES CORPORATION

WORCESTER, MASSACHUSETTS

C&K

WORLD LEADERSHIP IN AUTOMATIC BOX LOOMS–RESEARCH–ENGINEERING–MANUFACTURE

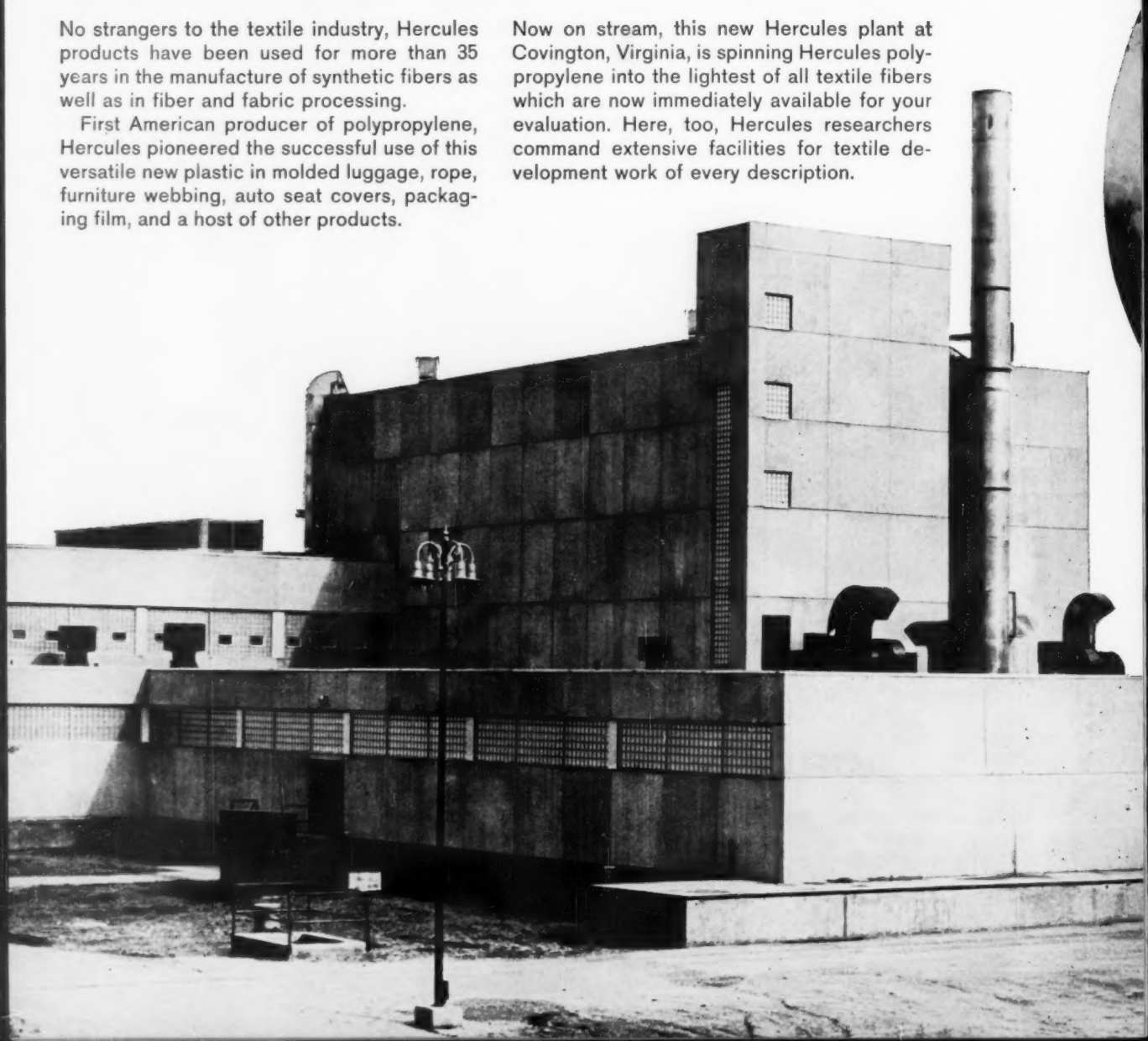
CHARLOTTE, N. C. / ALLENTOWN, PA. / CROMPTON & KNOWLES JACQUARD & SUPPLY CO. PAWTUCKET, R.I. / CROMPTON & KNOWLES OF CANADA, LTD., MONTREAL, QUEBEC

WAY OUT FRONT... HERCULES®

No strangers to the textile industry, Hercules products have been used for more than 35 years in the manufacture of synthetic fibers as well as in fiber and fabric processing.

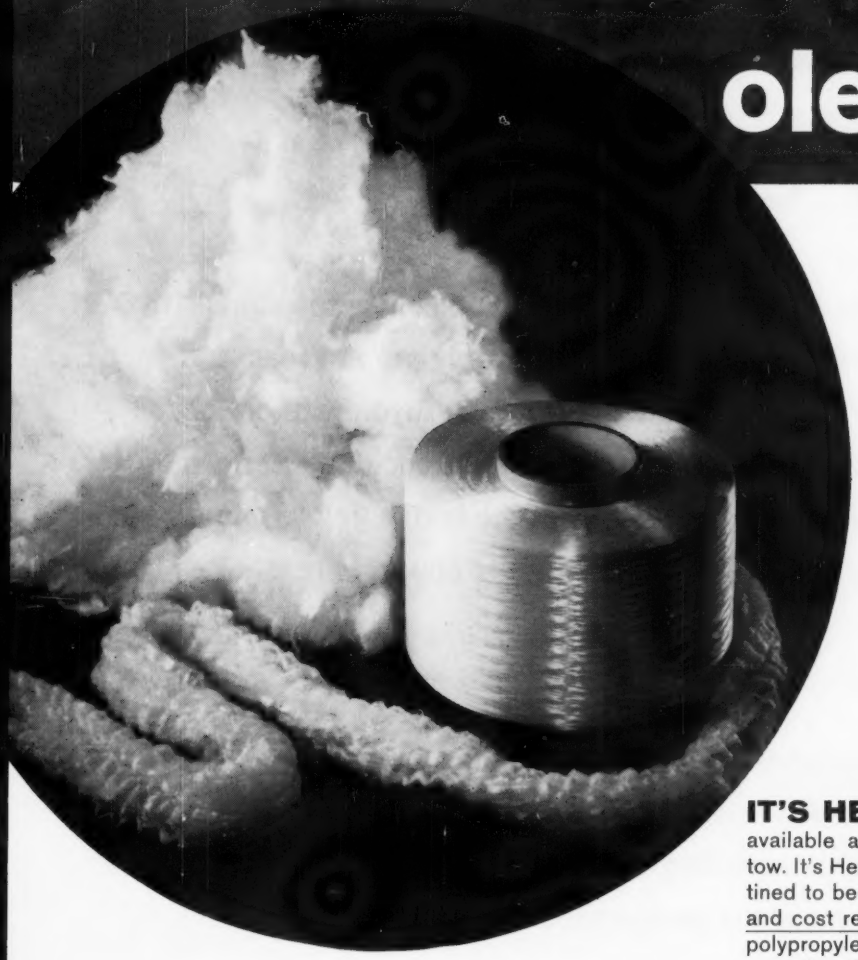
First American producer of polypropylene, Hercules pioneered the successful use of this versatile new plastic in molded luggage, rope, furniture webbing, auto seat covers, packaging film, and a host of other products.

Now on stream, this new Hercules plant at Covington, Virginia, is spinning Hercules polypropylene into the lightest of all textile fibers which are now immediately available for your evaluation. Here, too, Hercules researchers command extensive facilities for textile development work of every description.



POLYPROPYLENE

olefin fiber



Hercules... FIRST commercial producer of polypropylene in the United States, now leads the way in the commercial production of polypropylene fiber

IT'S HERE... first commercial polypropylene fiber, available as continuous multifilament yarn, staple, and tow. It's Hercules polypropylene, the new olefin fiber destined to become the new star in textile constructions... and cost reductions. So light it actually floats, Hercules polypropylene provides greater coverage per pound than any other fiber. It's strong and tough, rates high in resistance to mechanical abuse and chemical attack.

The variety of constructions made with Hercules polypropylene fiber in cooperative studies has already won high acclaim from technicians and designers. We invite you to share in the profitable future of this new fiber—and welcome the opportunity to work with you on product development. To aid you in evaluating markets, ask for detailed physical properties, denier tables, comparative coverage data, and other facts about Hercules polypropylene fiber.

FP61-1

HERCULES POWDER COMPANY
INCORPORATED

Fiber Development Department • 380 Madison Avenue, New York 17, New York
Branch Office: 1214 Wachovia Bank Building, Charlotte, North Carolina

Weave or Knit Cottons?

Consider COTRON®!

Introduced and proven two years ago, the Cotron concept assumes an increasingly important position today. Not only are impressive raw material savings possible by blending Avisco rayon with cotton, but Cotron fabrics actually have improved appearance and performance characteristics. That is why many leaders in the textile field are finding excellent reception to COTRON fabrics in many apparel areas.

WHY COTRON?

By combining the attributes of cotton and quality Avisco rayon, the individual benefits of each fiber complement the other to create an improved fabric. Fabrics featuring the nationally recognized COTRON name must meet the performance and quality standards established by American Viscose Corp.

FOR PROCESSING ON COTTON SYSTEMS:

Picking, carding, drawing, roving, warp slashing, weaving, knitting, dyeing, finishing and other cotton processing steps require little or no change in operational procedure to handle Cotron fabrics.

IMPROVED PERFORMANCE:

The Avisco rayon in the Cotron fabrics makes sure they launder better, are more abrasion resistant than similar all-cotton types that have been resin finished.

BETTER APPEARANCE:

Compared with their all-cotton counterparts, COTRON fabrics have greater yarn evenness and are much cleaner. They have brighter color luster, improved drape and hand, superior color fastness.

MORE COMFORTABLE TO WEAR:

Because Avisco rayons are the coolest, most comfortable fibers made by man, Cotron fabrics are a pleasure to wear on even the hottest days.

FOR COMPLETE INFORMATION CONTACT
AMERICAN VISCOSE CORPORATION, 350 Fifth Ave., New York 1, N.Y.;
221 So. Church St., Charlotte 2, N.C.;
1617 Pennsylvania Blvd., Philadelphia 3, Pa.;
630 Hospital-Trust Bldg., Providence 3, R.I.

C&A's Star

(Continued from page 26)

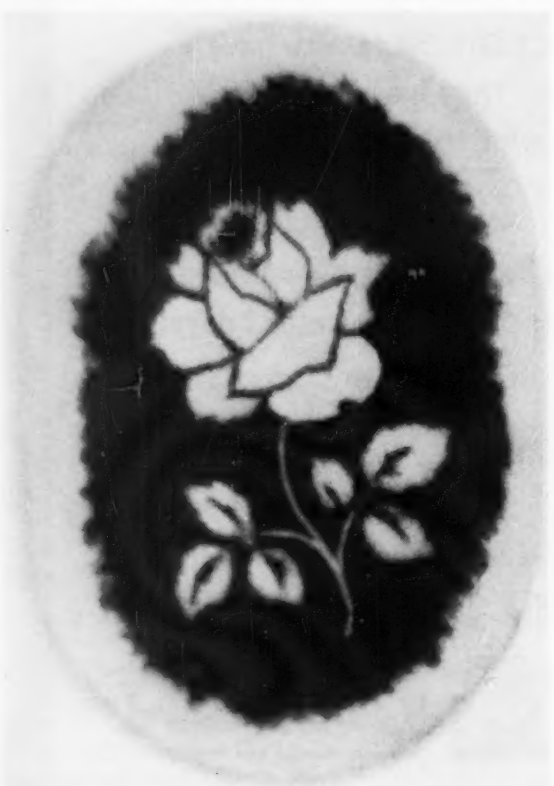
manufacturing man to head the company in its program of product change and plant relocation.

Leach brought to his job at Collins & Aikman a rare accumulation of down-to-earth production experience in the manufacture of pile fabrics for transportation upholstery as well as other fabrics for related fields. Born in England in 1906, he came with his parents to Sanford, Maine in 1912. At the age of 15 he went to work in Sanford Mills, then a big producer of pile upholstery fabrics for the transportation industry. Quite remarkably, he was at the age of 18 made assistant superintendent of Sanford's big Mill B. When he was 29, he was promoted to the post of full superintendent, bossing an operation of 69,000 spindles and 465 looms manned by 3,500 workers—vital statistics he recalls quite easily today with an understandable pride.

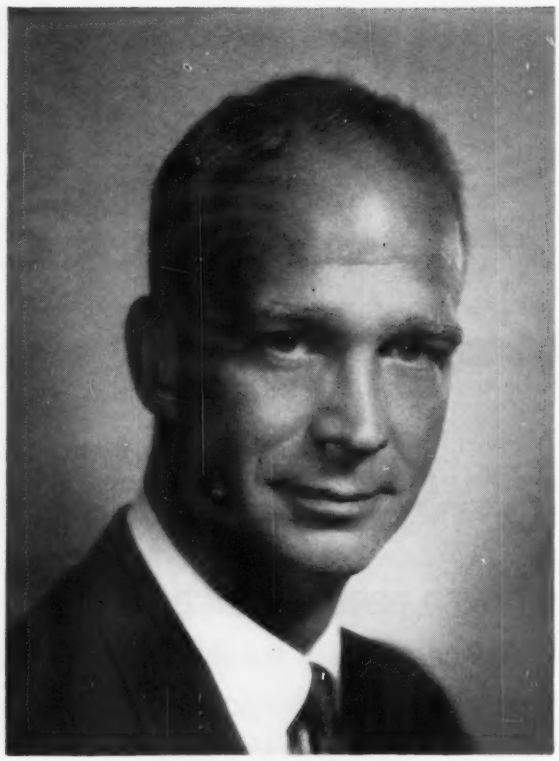
As the years went by, Leach took on additional duties at Sanford. Along with supervising its mills, he found himself active in selling the company's fabrics to the automobile industry as well as to the railroads. And so he became a rarely experienced all-around man in the pile upholstery industry—a man who knew how to sell the fabrics as well as how to make them.

In 1943, Leach accepted an advantageous offer to join another well-known producer of pile fabrics, E. E. Timme & Son. He remained at Timme for 13 years until he left to become president of Collins & Aikman.

When he joined Collins & Aikman the firm was already started on the program of reorganization and



BREAKING NEW GROUND for C & A is this synthetic deep pile throw rug with a printed design



Donald F. McCullough

product diversification that had been plotted by the directors to insure the continued prosperity of the corporation. It was time, the directors realized, to bring the firm, essentially sound and profitable, up to a level of modernity and efficiency that would make it equal at least with the most advanced outfits in textiles.

To this end, a first and basic step was the relocation of manufacturing facilities in new plants in the south and the disposal of older, less efficient plants in New England and Pennsylvania. Thus two plants in Pennsylvania and three plants in Rhode Island were sold. The Mayfair Chenille Co., with plants in Dalton and Calhoun, Ga., was purchased. Later the operations in these plants were concentrated in a new plant in Dalton. A plant was acquired in Culver City, Calif., as part of the Mayfair Division.

Near Roxboro, N. C. where Collins & Aikman had acquired a mill in 1927, extensive enlargement and re-equipping were carried out to result in the company's largest weaving, dyeing and finishing operation. Known as the Ca-Vel Division (the name is derived from Ca-Vel, a long-established brand name for C & A velvets the operation at Roxboro, today under the supervision of General Manager W. B. Hill, turns out toy plush, pile upholstery, pile lining and outerwear fabrics, industrial fabrics and rugs.

The improvements at Roxboro had been preceded by modernization and rebuilding of another C & A mill in North Carolina, it spinning plant at Norwood which had been acquired in 1943. Today, this mill, known as the Yarn Division, under George I. Simpson as vice president and general manager, turns out a wide range of spun yarns for sale to weavers, knitters and tufters.

As a further step in expansion and diversification, Collins & Aikman in 1951 purchased the Stead &

(Continued on page 70)

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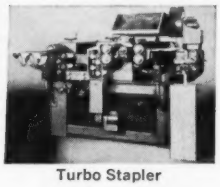

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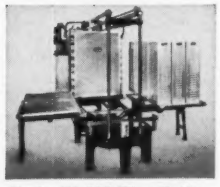

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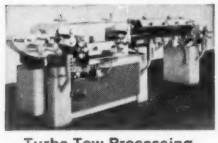

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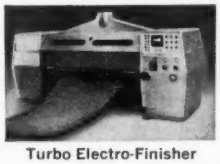

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Nip rollers on Daltoflex unit bring reverse side of adhesive film against foam sheet

For bonding fabric-foam laminates

New English adhesive method

DESPITE A GREAT INTEREST in the potentials of adhesive laminating techniques, most British foam-fabric laminate manufacturers have so far been using flame bonding methods. Now Imperial Chemical Industries has announced the development of what is claimed to be a simple yet dependable adhesive method.

Named the Daltoflex method, the I.C.I. technique is based on a transfer spreading principle. It can be used on conventional rubber spreading machinery, although I.C.I. has built one special demonstration plant. The company does not intend to build commercial machines for sale. It is content to let its Dyestuffs Division continue as a supplier of polyurethane adhesives and foam chemicals. But independent machinery builders may be licensed to construct special Daltoflex machines.

In the process a urethane rubber adhesive is spread by a doctor blade onto a silicone rubber coated endless fabric belt. The adhesive film produced is about 0.5 thousandths of an inch thick. The endless belt takes the film through a spreading chest and between nip rollers which also take delivery of the fabric. Thus film and fabric are joined. The other side of the film is then married to the foam sheet. The sandwich is passed around a heated cylinder under pressure and is finally taken up on a delivery roller. In laminating loosely knit fabrics the adhesive is sometimes first combined with the foam.

The adhesive film is extremely fine, and all the solvent dries by the time the film has reached the end of the spreading chest. Thus use of heat to remove the solvent is unnecessary. In fact the process is a cold one until the laminated fabric reaches the heated cylinder which reactivates the adhesive. At the nip rollers the fabric picks off all the adhesive film, leaving the endless belt clean. I.C.I. stresses that the adhesive film, being dry, does not penetrate the fabric.

If a permeable fabric-foam laminate is required, the endless belt which carries the film is replaced by a heavy silicone-coated rubber duck belt, the

(Continued on page 70)

HDT.1

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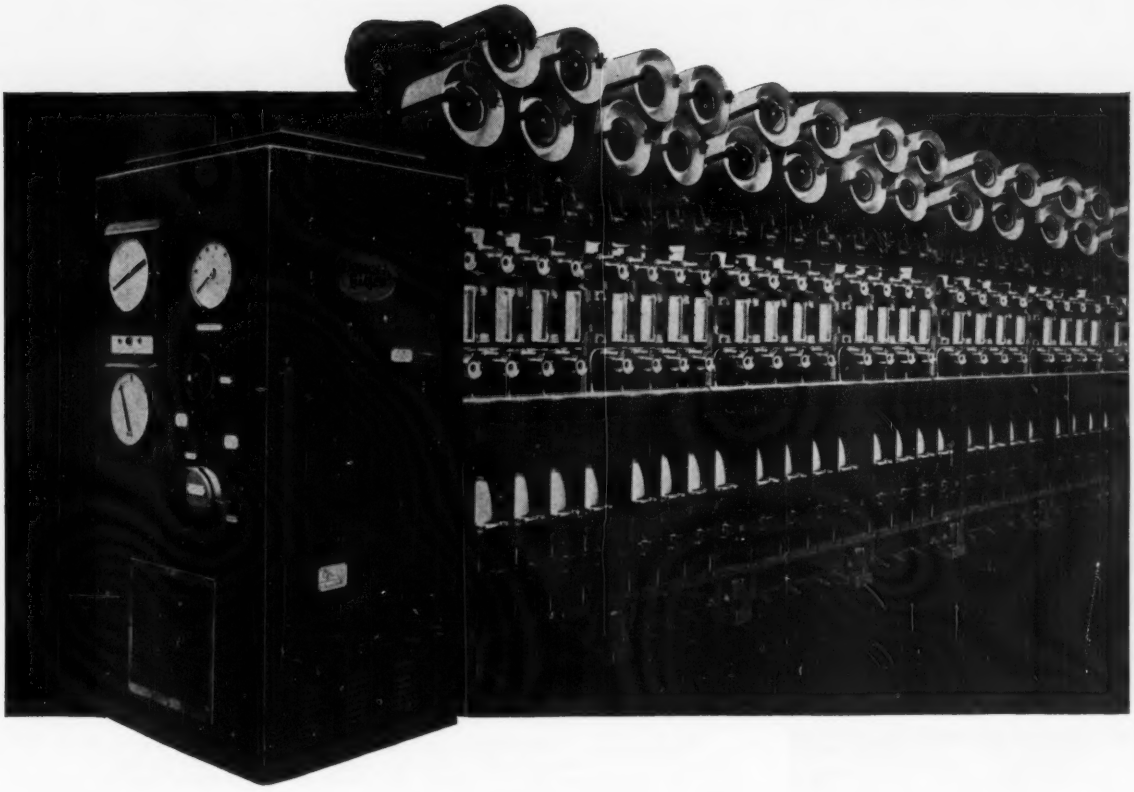

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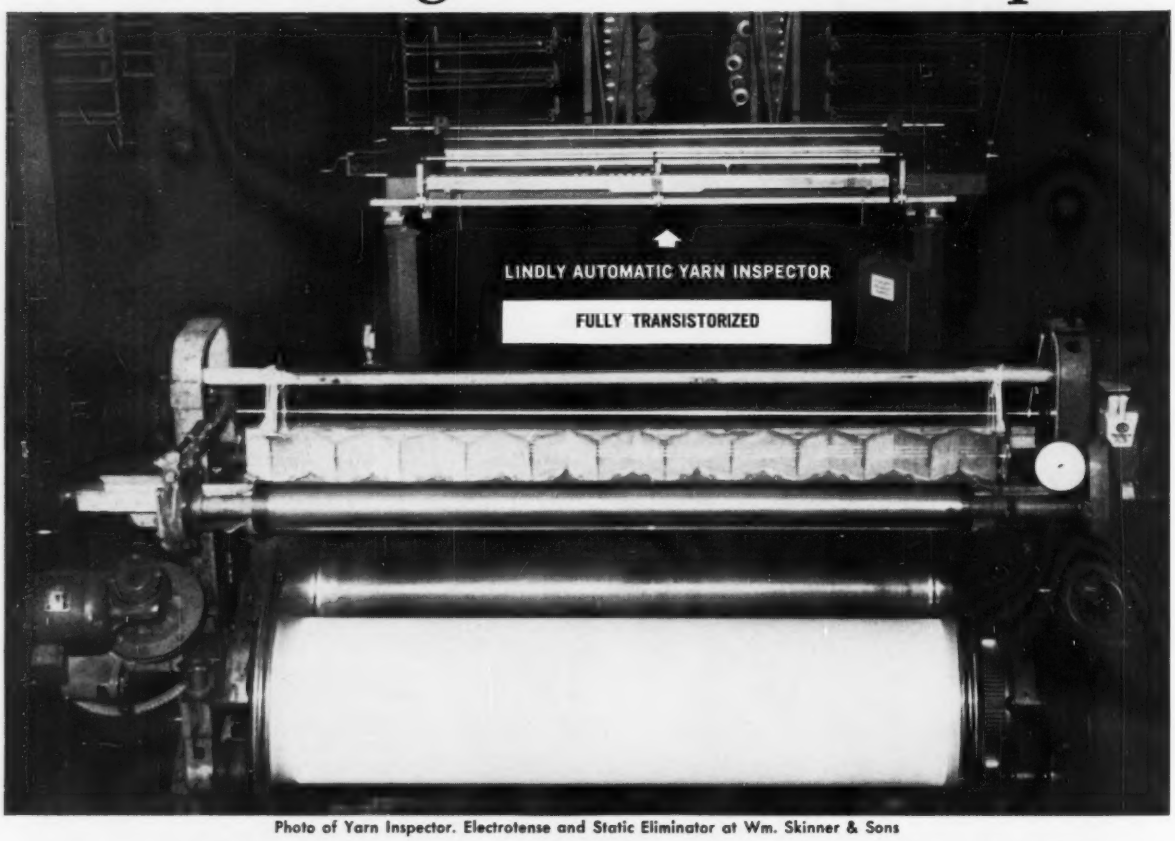
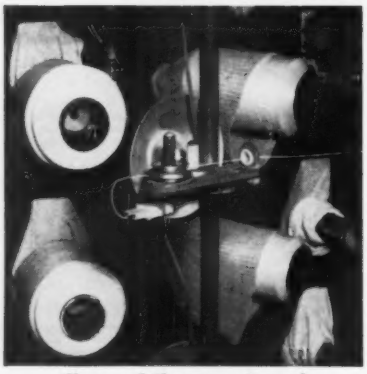


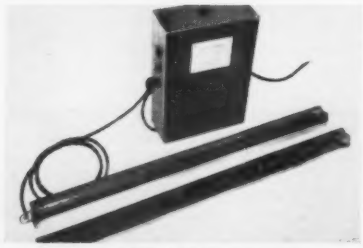
Photo of Yarn Inspector. Electrotense and Static Eliminator at Wm. Skinner & Sons

The LINDLY Electronic Triumvirate Gets the Credit

YARN INSPECTOR – ELECTROTENSE – STATIC ELIMINATOR



Closeup of Electrotense in creel.



Lance Static Eliminator — not visible in installation photo.

When we asked William Skinner & Sons, Holyoke, Mass. for a report on their installation of a Lindly Automatic Warp Yarn Inspector, the Lindy Electrotense in their creel and a Lindy Static Eliminator, their answer was prompt and enthusiastic: "No more tight ends in our warps."

However, when we asked them to go back temporarily to warping without the Lindly controls, so we could get some comparative "before" data, they flatly refused. "Why should we go through that again, when we don't have to?" they asked, and we can't blame them.

Since Skinner didn't need comparative data to prove the value of the Lindly Electronic Triumvirate, we doubt if you would either. So why not try an installation? Here's what the triumvirate is and does:

THE LINDLY AUTOMATIC YARN INSPECTOR is a high-speed, ultra sensitive photo-electric instrument for detecting yarn defects in warps, such as broken filaments, strip-backs and fluff balls. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection.

THE LINDLY ELECTROTENSE for warp creels, winders, twisters, knitting machines, etc. provides completely uniform tension for any number of ends and the tension for all ends can be varied by turning only **one** dial. It consists of two conventional discs with an electromagnetic coil beneath. The lower disc is of non-magnetic brass, while the upper disc is of magnetic iron. When the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating, which prevents backup of twist and helps keep the tension discs clean and free turning.

LANCE STATIC ELIMINATOR, made in a variety of models, has a textile application wherever static electricity is a problem. It carries a high voltage discharge from pointed electrodes into the air, causing the fibre to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to ionize effectively the air, it cannot harm the operator, who accidentally comes in contact with the electrodes.

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Retailing trends discussed at TDI meeting

A REVOLUTION IN RETAILING is taking place that may greatly enlarge the markets for many textile products, members and guests of the Textile Distributors Institute were told at the Institute's annual meeting in New York City on Oct. 19. Andrew J. Sokol, vice president of J. P. Stevens & Co., Inc., guest speaker at the meeting, said that the trend of discount houses to market apparel and other textile products may result in increased sales of these items to consumers. He pointed out that, because discount stores operate at lower profit margins than ordinary retailers, increased participation in soft goods distribution by the discounters may mean greater volume for converters and hence greater opportunities for more profitable business.

Mr. Sokol noted that another part of the radical change under way in distribution methods was the consolidation of several moderate and smaller size firms into one large corporation. As an example, he pointed to the recent merger of 17 important suppliers of one of the leading chain and mail order houses into a single corporation.

As still another aspect of the distribution revolution, Mr. Sokol cited the continuing growth of manufacturing retailers. He named as representative examples Robert Hall, Spartan Industries, Cluett Peabody and the Lerner Stores. These developments, he said "are a part of the unmistakeable trend in all business today to bring the primary supplier closer to the ultimate retailer. Are we gearing ourselves," he asked, "to cope with the problems created by these dynamic changes in the pattern of distribution?"

Another speaker at the meeting, Irving Roaman, president of the TDI, described some of the services performed by the organization. He cited the TDI's Design Registration Service, its Trade Mark Bureau, Impartial Freight Rate Service and recommended sales contracts.

TDI Services Described

As an example of how Textile Distributors Institute works to improve the position of the converter, Mr. Roaman discussed sample cut service charges. "We all recognize," he said, that sending out sample cuts has been an expensive proposition. The cost of sample cuts is individually much higher than for volume shipments of the same fabrics. However, when it is a universal trade practice to make no additional charge for sample cuts, it is difficult for any individual company to deviate from this practice. That is where the Institute came in. We were instrumental in obtaining information about the additional costs involved and alerting our members to the facts. I am sure that textile distributors would not have been aware of this situation if the Institute had not first reported what these costs actually are, and secondly reported the extent to which reasonable charges were being made for sample cuts by others. In this connection, Abbot Copeland of Cohn Hall Marx Co. writes:

'About three years ago we made a survey of the cost of shipping sample cuts to garment manufacturers and discovered that the cost totaled $1.97 for each four yard cut, including cutting, packaging, invoicing and delivering. We thought it would be no more than fair to ask our customers to make some small contribution to this great expense and we instituted a charge of 10¢ a yard above our list price for cuts less than 15 yards in length. After some expression of unhappiness from relatively few of our customers, this charge became accepted, especially after the same policy was adopted by many other members of the Textile Distributors Institute and is now almost universally in effect. We are currently watching developments in the Textile Fabrics Association which represents the cotton goods industry, in connection with a proposal they are considering to increase their practice of many years standing of charging 50¢ a package for sample cuts to 75¢ a package. We have not decided what we may do about it but it is interesting that most companies in the industry are thinking along the same lines.'

Membership Drive Pushed

Mr. Roaman said that TDI has set as its goal in a current membership drive a recruiting effort that will double membership. He asked all present members to aid in the drive to enroll new members. Membership in the Textile Distributors Institute, he said, "is the only means I know of in which the reputable self-interest of the individual firm can be pooled with that of others and thus be made effective in the practical conduct of business affairs."

At the meeting Louis J. Brenner, Shirley Fabrics Corp., chairman of the nominating committee, offered a slate of ten candidates who were elected to the board of directors and reaffirmed the complete board. The committee included Louis E. Kates, French Fabrics Corp., and Arthur Raphael, Cameo Fabrics, Inc.

Unanimously elected to the board of directors were the following four members: Theodore I. Felner, Burlington Retail Fabrics Co.; Murray Grobstein, Bloomsburg Fabrics, Inc.; Stewart Schwarz, Sage Fabrics Corp.; and David Travis, Travis Fabrics, Inc.

Unanimously re-elected to the board of Directors were the following six members: Louis J. Brenner, Shirley Fabrics Corp.; George Greenspan, Cantor-Greenspan Co., Inc.; Louis E. Kates, French Fabrics

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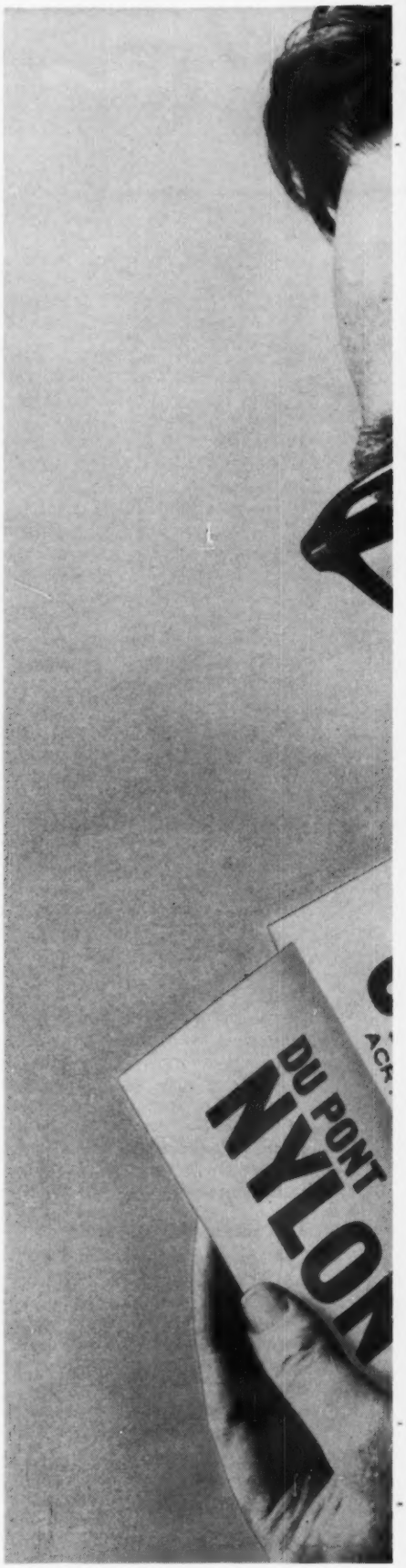

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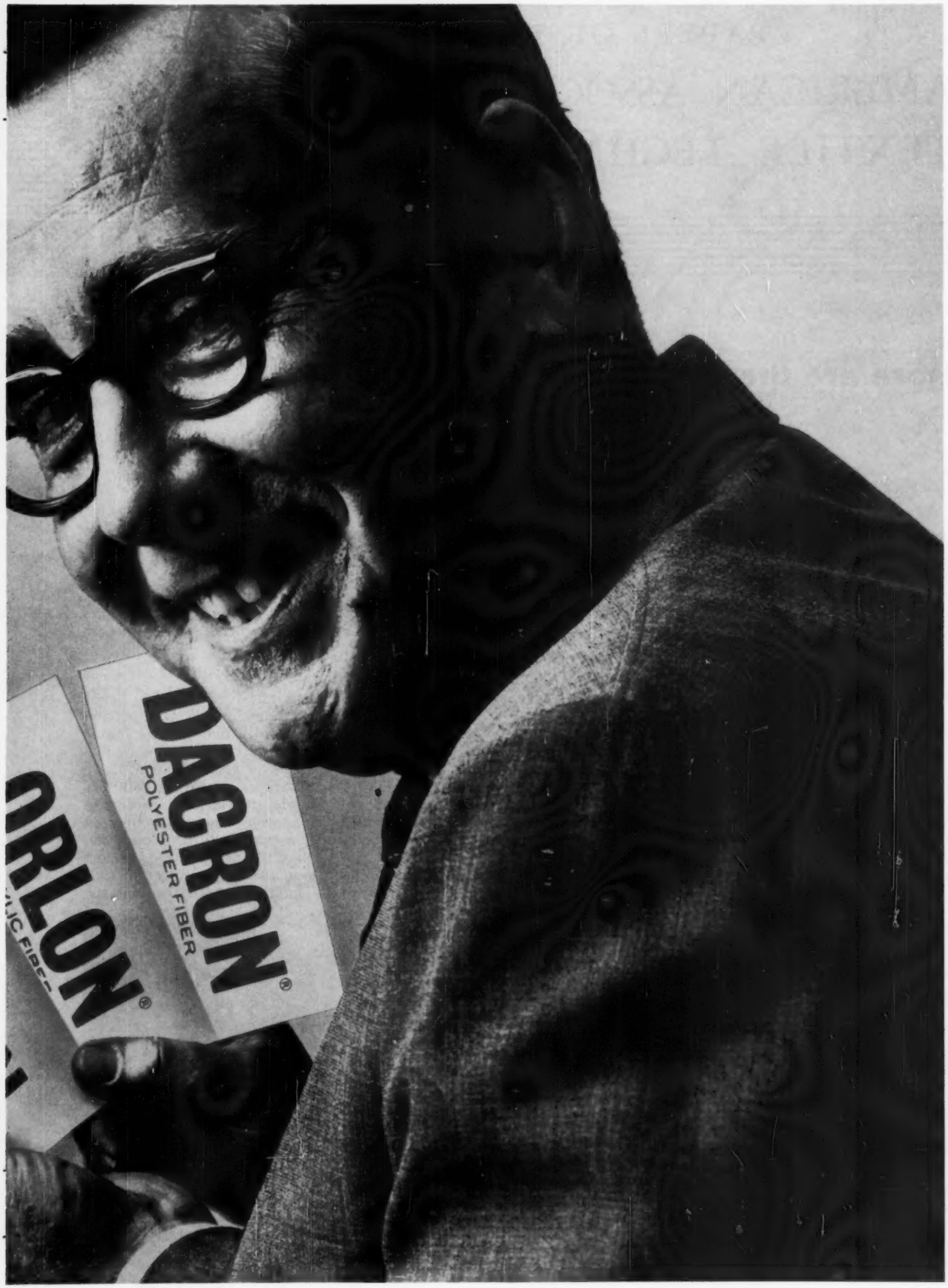
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Here are the facts about

ZANTREL

Polynosic fiber

by C. Eugene Coke

THIS PAPER DEALS with a remarkable new manmade cellulosic fiber which provides a combination of physical properties, performance characteristics and aesthetics previously not available to the textile industry. Zantrel Polynosic staple fiber possesses the desirable features of most manmade fibers in its controlled luster, uniform dye absorption, uniformity of fiber diameter and length, as well as its availability in sizes best suited to specific end-products. The physical properties of Zantrel bear a striking resemblance to high grade cotton in regard to strength, elongation, initial wet modulus, water absorption and resilience.

Evolution of Zantrel

Historically, Zantrel has its origin some 20 years ago as the brain child of a brilliant Japanese scientist, the late Dr. Shozo Tachikawa. In his independent research laboratories, he set out to try to produce manmade cotton. His work commenced in 1938 and by 1951, when he first announced his discoveries to the English-speaking world in MODERN TEXTILES MAGAZINE (1), he had gone a long way toward his goal. However, some of Tachikawa's laboratory techniques were rather impractical for commercial production.

In 1953, the large French fiber producing company, CTA, with affiliates in Belgium and Switzerland, acquired an option to patents on the Tachikawa fiber, known as "Toramomen". After five years of research directed toward practical commercial adaptation of Tachikawa's laboratory technique, CTA signed a license agreement in 1958. In Europe, the fiber is known as Z-54.

Hartford Fibres Co. entered the picture by acquiring a license to produce the fiber in the United States in 1959. Commercial production of Zantrel at Hartford commenced toward the end of 1960. The technique by which Zantrel is produced is covered by seven American patents.

Manufacturing Technique

The manufacturing technique for Zantrel is based on a new concept in cellulose chemistry. One portion of this concept is concerned with maintaining maximum cellulose chain length throughout the manufacturing process. In the case of viscose rayon, there are two stages in its manufacture where the cellulose chain length is deliberately degraded in order to simplify the process. Because of the differences in manufacturing technique between the two processes, the cellulose chain length (DP) of Zantrel is almost twice that of viscose rayon. Another important feature of this concept is concerned with forming the

Dr. C. Eugene Coke is director of research and development of Hartford Fibres Co., a division of Bigelow-Sanford, Inc. Prior to joining Hartford he was manager of development for Courtaulds (Canada) Ltd., with which he was associated for 15 years. He began his career as a student of organic and physical chemistry and achieved a doctorate in textile chemistry in 1938. A member of more than a dozen professional societies, Dr. Coke is the author of numerous articles on textile subjects.

Dr. C. Eugene Coke

Zantrel fiber in such a way as to obtain a compact, round homogeneous structure. To produce this new manmade cellulosic fiber, there is involved a large amount of costly and highly specialized equipment. Also involved are new chemical compositions, concentrations, and temperatures, as well as vastly more critical control of the process than was ever dreamed of in the manufacture of "old" rayon.

Structure of Zantrel

It is common to all manmade fibers that they are formed from long chain molecules which are oriented to a greater or lesser degree in the longitudinal direction of the fiber. These long chain molecules are called polymers and the unit molecules from which they are built are called monomers. Polymers tend to aggregate or crystallize in areas where they lie parallel to each other. Stretching a polymer network further orients the molecules and increases the amount of crystallite in the network. This is shown schematically in Figure I.

Manmade fibers thus have a molecular architecture consisting of long chain molecules arranged in regions where they are parallel to each other called crystalline regions or crystallites, and other regions where they are arranged in a loose, random manner, called amorphous regions. There is no sharp demarcation between crystalline and amorphous regions, and one long chain molecule may pass through more than one crystalline region.

Professor H. F. Mark (2), in his 33rd Edgar Marburg lecture to the American Society for Testing Materials in June, 1959, points out the very important relationship between degree of polymerization (DP) and mechanical strength. DP is the average number of unit molecules (monomers) which are joined together to form a long chain molecule (polymer). This relationship is shown in Figure II. Although the absolute values shown in Figure II may vary slightly from polymer to polymer, Mark indicates that, in general, a polymer having a DP less than 50 is deficient in mechanical properties. Depending on the polymer, he states that the gain in mechanical strength with increasing DP begins to diminish somewhere in the DP range between 350 and 550.

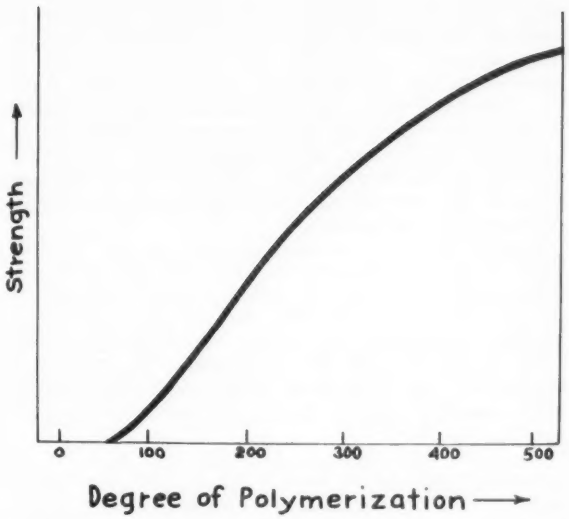

FIGURE II—Effect of DP on mechanical strength. (H. F. Mark, 1959)

Mark also points out the important influence of molecular orientation on mechanical properties of a polymer. This is shown in Figure III, as a general diagram, where the absolute values may vary slightly from polymer to polymer. The graph shows that in the early stages of stretching a long chain molecule network there is a relatively small gain in mechanical properties, but as the stretching and thereby the orientation continues to increase, the gain becomes very pronounced.

What do we know about the molecular architecture of Zantrel? The average cellulose chain length of Zantrel is 520, whereas that of "old" rayon is

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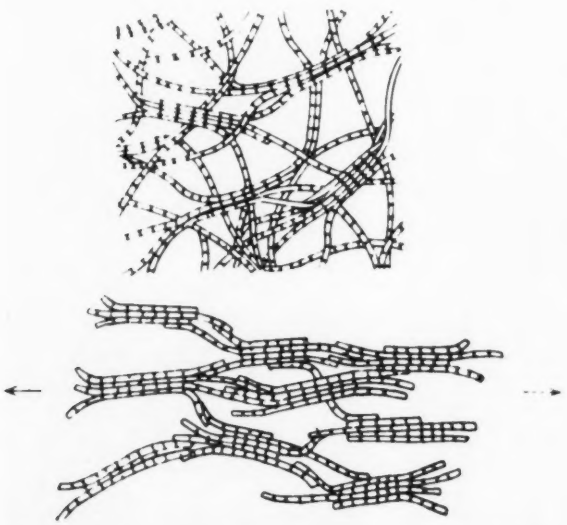

FIGURE I—Upper: Unstretched polymer network. Lower: Stretched polymer network showing orientation. (After Gerngross & Hermans)

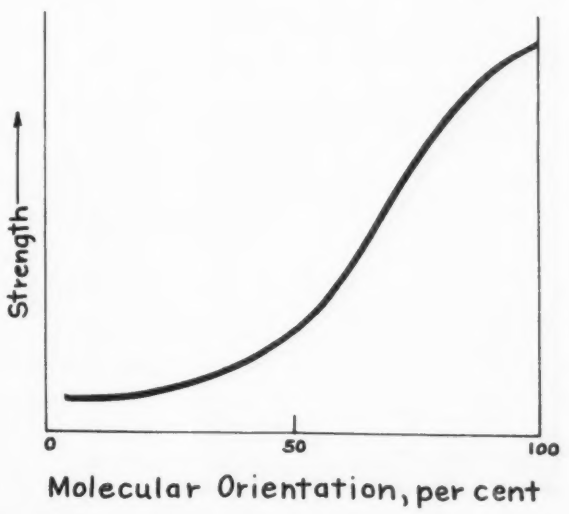

FIGURE III—Effect of molecular orientation on mechanical strength. (H. F. Mark, 1959)

about 270. This means that a cellulose molecule in Zantrel can pass through more crystalline regions than in rayon. As a result, the cellulose network in Zantrel is more firmly bound and is stronger. Also, the amount of amorphous material in the two fibers is quite different, "old" rayon containing about twice as much as Zantrel. This again points to higher strength in the Zantrel fiber, particularly in the wet state, as well as greater resistance to swelling agents such as water and alkalis.

Figure IV shows a cross-section of the Zantrel fiber. It will be observed that the fiber is round and homogeneous and free of the skin-core combination found in "old" rayon. The skin of rayon contains smaller crystallites and more crystallites than the core; it also is different in swelling capacity, dye absorption and mechanical properties. These differences are not found in Zantrel because of its homogeneous structure.

Figure V illustrates the microfibrillar structure of cotton and Zantrel, as well as the non-fibrillar structure of "old" rayon. These photomicrographs show the striking resemblance between the fibrillar structure of cotton and Zantrel. It will be observed that the Zantrel fibrils, which are bundles of fairly highly oriented molecules, are compactly spaced and quite uniform in size and distribution.

In summary, it can be said that the structure of Zantrel is similar to that of the natural cellulosic fibers, such as cotton and flax, in which the cellulose molecules forming the structural elements are closely and uniformly arranged with strong chemical bonds between them. This is in contrast with "old" rayon in which the fiber is built up from irregular bundles of shorter cellulose molecules which are more randomly arranged and which therefore have fewer and weaker chemical bonds. These differences in chain length and in structure are responsible for the differences in physical, chemical, and performance characteristics between Zantrel and the natural cellulosic fibers on one hand, and "old" rayon on the other hand. They account for the much lower resistance of "old" rayon toward swelling agents, such as water and alkalis, which penetrate between

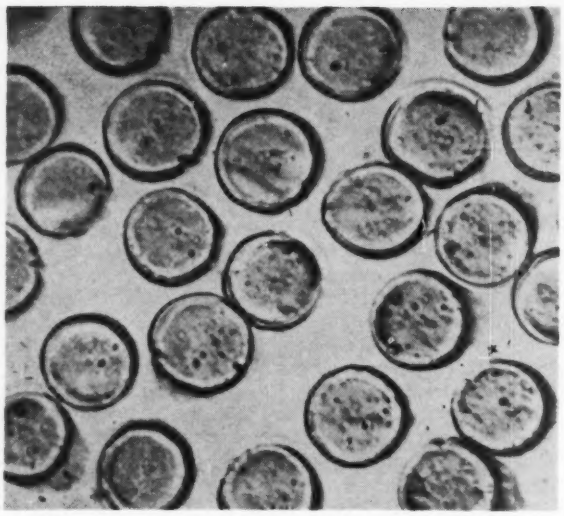

FIGURE IV—Photomicrograph showing cross section of Zantrel fiber (600 X).

the cellulose molecules readily and thereby further weaken the chemical bonds holding the structure together. This also accounts for the low wet strength and the low initial wet modulus of "old" rayon.

The physical and chemical properties as well as the aesthetics of Zantrel are characterized not by chemical composition alone, but by a combination of all the following factors:

a) chemical composition,
b) polymer chain length,
c) molecular architecture,
d) microfibrillar structure.

No one of these factors alone characterizes the fiber. This is true of natural fibers also, since Sea Island cotton and jute have essentially the same chemical composition in purified form, namely, that

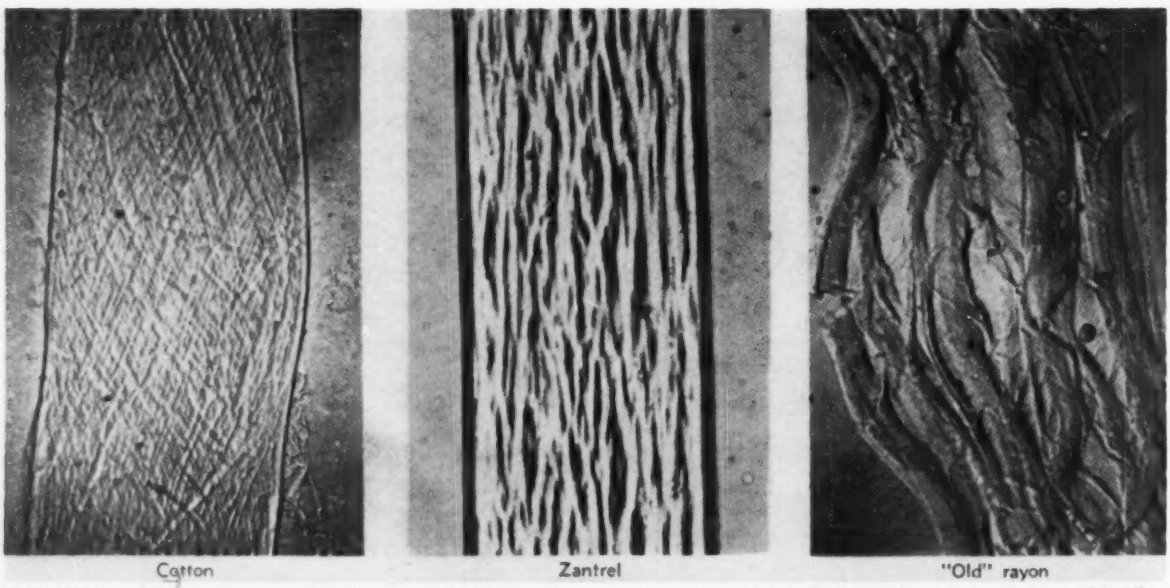

FIGURE V—Photomicrographs showing fibrillar structure of cotton (left) Zantrel (center) and nonfibrillar structure of "old" rayon (right) 900 X

of cellulose. The chemical analyst finds no basic difference in chemical composition between cotton, jute, "old" rayon, and Zantrel.

Physical Characteristics of Zantrel

Having discussed the structure of the Zantrel fiber, let us now look at the physical characteristics which are obtained from this structure. In Table I there is given a summary of the major physical characteristics of Zantrel. It will be observed that the tenacity, elongation, initial wet modulus, average toughness, average stiffness, specific gravity, and water imbibition of Zantrel are all very similar to those same properties in a good grade of cotton.

Figure VI shows typical stress-strain curves for Zantrel in the conditioned and wet state. These curves bear a striking resemblance to similar curves for cotton.

From Table I and Figure VI, it is apparent that the initial wet modulus (% elongation under a load of 0.5 g.p.d.) of Zantrel is identical with that of cotton, both of which are vastly superior in this respect to "old" rayon.

The inherent dimensional stability of fabrics made from Zantrel is attributed to its high initial wet modulus, its relatively low swelling, and its excellent wet elastic recovery.

Processing of Zantrel

Since detailed literature is available (3) on this subject, only a few highlights are given here. Zantrel can be processed on any of the conventional spinning systems with a minimum of changes in mechanical and processing conditions. On the cotton system, a general statement, process as for cotton, can be made. With regard to moisture requirements, and in its response to moisture, Zantrel resembles cotton. Both fibers are stiffer than most other textile fibers. Moisture provides greater pliability to the fiber and reduces fly waste and staple breakage. Zantrel presents little or no fly waste problem in a cotton mill because its dye absorption is very similar to cotton.

Because Zantrel fiber, as delivered, is clean, free, and open, the fiber can be converted directly into a picker lap. As compared with cotton, some minor card setting changes for Zantrel are desirable to obtain maximum efficiency and yarn quality. Production rates, on 40" cards, of between 14-20 lb./hour for 1.5 and 3.0 denier, and 7-14 lb./hour for 1.0 denier, are possible. The settings, speeds, and yields for drawing, roving, and spinning are normal.

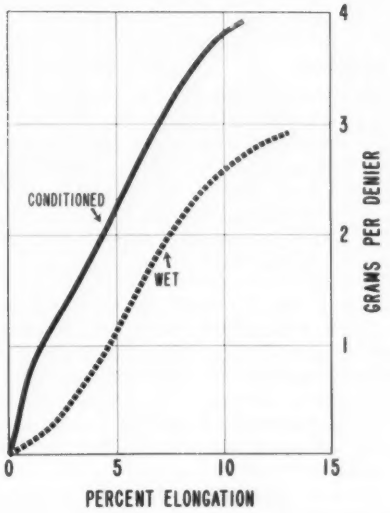

FIGURE VI—Typical Instron stress-strain curves for Zantrel polynosic rayon fiber

Spinnability of Zantrel yarns has been good over a rather wide range of humidities.

The practical commercial spinning ranges for weaving yarns made from different sizes of Zantrel staple fiber are as follows:

3.0 denier	Up to 26/1 cc.
1.5 denier	Up to 45/1 cc.
1.0 denier	45/1 and above.

Zantrel Yarn Twist

For woven fabrics, twist multipliers within the range of 3.2 to 3.8 have been found to give satisfactory yarn strengths for both warp and filling yarns. A very general rule is to use 10-15% less twist in Zantrel yarns than in cotton. For knitting

Table I

PHYSICAL CHARACTERISTICS OF ZANTREL FIBER

	Conditioned	Wet
Tenacity (g.p.d.)	3.8-4.0	2.8-3.0
Elongation (%)	11	13
Tensile Strength (p.s.i.) (Instron)	76,000	56,000
Initial Wet Modulus (Elong. under a load of 0.5 g.p.d.) (%)	——	3.1
Average Stiffness (g.p.d.)	39	24
Average Toughness (g.-cm./den./cm.)	0.20	0.17
Repeated Strain Tests @ 3% (5 cycles)		
% Permanent Set	0.98	0.12
% Elastic Recovery	67.2	96.1
Specific Gravity	1.51	——
Moisture Regain (70°F., 65% R.H.)	12.2	——
Water Swelling (70°F.)		
By Weight (q-water imbibition) (%)	——	60
Cross Sectional Area (%)	——	35

yarns, somewhat lower twist multipliers can be employed, in the range of 3.0 to 3.3.

Zantrel in Blends

Intimate blends of Zantrel with other manmade fibers and with natural fibers can be produced in the manner described previously and the same general rules apply. As with other manmade fibers, blending should be carried out at the earliest possible stage of processing, by any of the conventional methods. When blending with cotton, this should be done at the drawing frame.

Intimate blends of Zantrel with cotton require less twist than 100% cotton yarns. It is suggested that the twist multiplier range for these intimate blends be between 3.2 to 3.6 in most cases. Because of the striking similarity of the stress-strain curves for Zantrel-and cotton, the break factors for Zantrel-cotton blends fall practically on a straight line drawn between the break factors for 100% Zantrel and 100% cotton.

Figures 7, 8, 9, and 10 show results of some of the work undertaken by one of the large Southern cotton mills to compare yarn strength and yarn uniformity of Zantrel, cotton, and blends of the two fibers, both carded and combed. It will be observed that Zantrel does a remarkable job of upgrading a carded blend yarn both in regard to strength and yarn uniformity. Other graphs, not shown here, also indicate a similar improvement in yarn appearance. As would be expected, Zantrel does less for a combed than for a carded blend yarn.

Warp Preparation and Weaving

Conventional equipment, speeds, and tensions are adequate for warp preparation of Zantrel yarns. Slasher size formulae as used for cotton, but 50% more dilute, are satisfactory. Moisture content of the slashed warp should be in the range of 7 to 10%, consistent with uniform drying. It will be generally observed that slashed Zantrel yarns are slightly leaner than carded cotton yarns and closely resemble the appearance of slashed combed cotton yarns.

Weaving of Zantrel yarns is best carried out under weave room humidity conditions used for cotton, i.e., at least 80% R. H. In other aspects of weaving, the best results are obtained when Zantrel is handled as for cotton.

Dyeing and Finishing

Literature (3, 4) on the dyeing and finishing of Zantrel and Zantrel blend fabrics is available. Therefore, only high-lights are presented in this paper.

Zantrel and Zantrel blend fabrics either as intimate blends or ortho mixtures may follow one of two routes through dyeing and finishing. One is the so-called synthetic route and the other is the continuous cotton range. Of the two, the latter is of course the more economical. However, in our work with Zantrel, some continuous cotton ranges have been encountered which are vicious and brutal to cotton. On such ranges, Zantrel fares no better.

A typical synthetic route consists of the following routine steps: a) singe, b) desize, c) scour, d) bleach, e) dye, f) resin treat, g) wash, h) compressive shrink.

A typical continuous cotton range route consists of the following: a) singe, b) desize and scour, c) caustic saturate (if necessary), d) bleach, e) mercerize (if necessary), f) continuous vat dye, g) resin treat, h) wash, i) compressive shrink.

The above-mentioned steps are all conventional. When 100% Zantrel fabrics are processed on the continuous cotton range, steps c) and e) are not necessary and should be omitted. Mercerization of 100% Zantrel fabrics is not required because these fabrics have an inherent luster equal to highly mercerized cotton.

The ability of Zantrel to process satisfactorily through the continuous cotton range is due to its

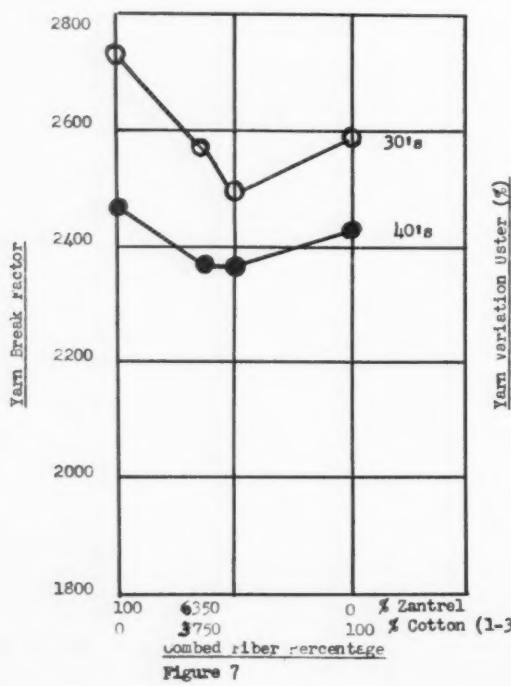

Figure 7

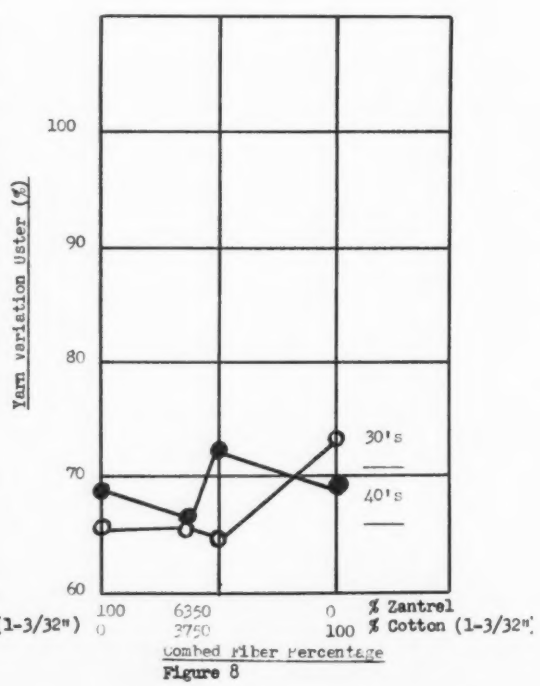

Figure 8

resistance to the action of caustic soda which is vastly superior to that of "old" rayon but not as high as for cotton.

When Zantrel is used in intimate blends or in ortho mixtures with other fibers, some modification of the procedure may be required to accommodate the other fiber or fibers. In the case of Zantrel polyester blends, for example, the fabric is best wet processed in the identical manner used for a similar cotton/polyester blend.

Bleaching

Bleaching of Zantrel and Zantrel/cotton fabrics, with a minimum of strength loss, is accomplished in Europe by the use of peracetic acid. In the United States, satisfactory results have been obtained with sodium chlorite. Hydrogen peroxide is satisfactory, but a chelating agent should be used to eliminate the harmful effect caused by any trace of iron. Sodium hypochlorite appears to be the least effective bleach for Zantrel.

Dyeing

The dyeing of Zantrel and Zantrel blend fabrics requires no special techniques nor equipment. In general, Zantrel can be dyed as for cotton and a Zantrel blend as for the corresponding cotton blend. However, it is necessary to first match for shade in the laboratory, since some dyes give a slightly lighter shade on Zantrel than on cotton while some others give a slightly darker shade. The differences are about the same as those found between different lots of cotton. A full range of solid shades can be produced without difficulty on Zantrel/cotton intimate blends and ortho mixtures.

The following is a list of the main classes of dyes for Zantrel fabrics:

a) vats, b) dyes developed on the fiber (azoics), c) indigosols, d) reactive dyes, e) sulfur dyes,
f) washfast and lightfast directs,
g) pigment dyes.

Of this group, vats are the most preferred and washfast and lightfast directs are the least preferred.

Equipment for the application of dyes to Zantrel and Zantrel blend fabrics is conventional. In dyeing as well as other wet processing of Zantrel, tensions applied to the fabric should be as low as is possible. This precaution applies to all fabrics regardless of the fiber content and it just makes good common sense.

Finishing

As with wet processing and dyeing, Zantrel and Zantrel blend fabrics can be finished satisfactorily on either the synthetic or the cotton system.

A remarkable feature of Zantrel fabrics is their inherent dimensional stability. Zantrel fabrics, with or without resin treatment, can be mechanically compression shrunk to less than 1% residual shrinkage, thus meeting the stringent requirements laid down for use of the Sanforized (5) label.

Zantrel fabrics, in pure finish, have a friendly, lofty, luxurious hand, with a soft toned luster, all of which are desirable aesthetics in any fine quality fabric. However, individual converters may wish to vary the natural hand of the fabric. This can be accomplished by the use of small amounts of either softeners or thermosetting resins.

"Easy-care" features can be conferred on Zantrel fabrics by the application of nonchlorine-retentive thermosetting resins or the new chemical cross-linkers, of the type used on cotton for the same purpose. The desired effect can be obtained in Zantrel with the same solids add-on as for cotton but without cotton's serious loss in strength.

The high tensile and tearing strengths of Zantrel fabrics, together with its satisfactory behavior on

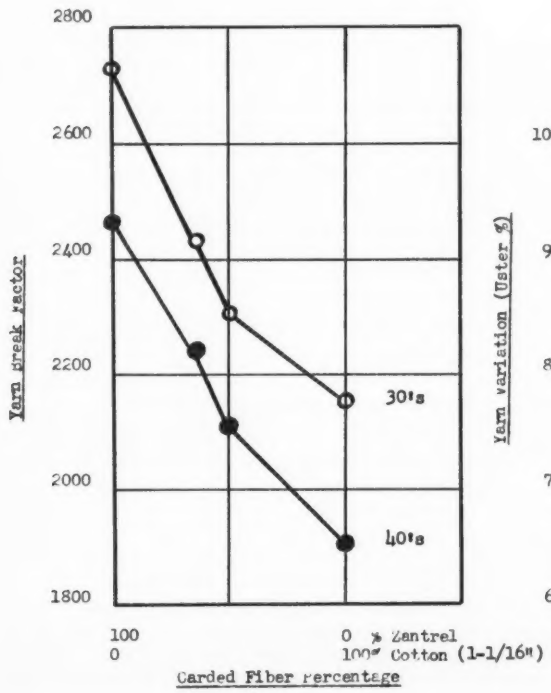

Figure 9

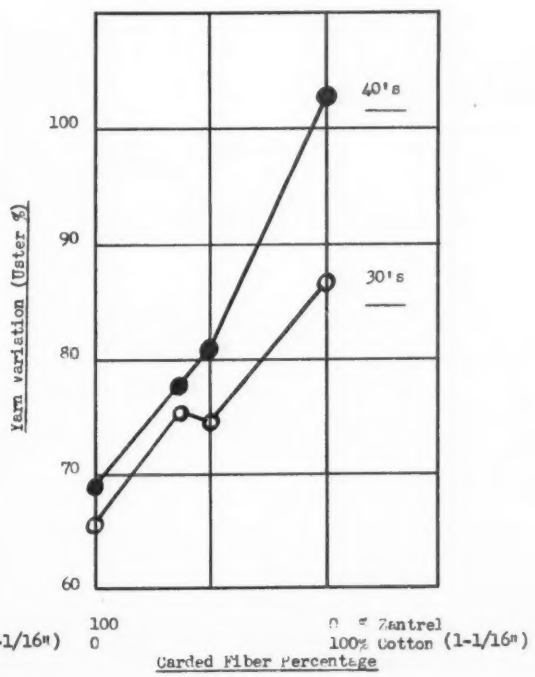

Figure 10

resin treatment, are favorable factors facilitating mechanical finishing treatments for producing luster and silk-sheen effects.

Because of the resistance of Zantrel to caustic soda solutions, Zantrel fabrics can be plisse printed to give a fabric with good dimensional stability and a hand and appearance superior to cotton.

A residual shrinkage of less than 1% can be attained in blends of Zantrel with thermoplastic fibers by heat setting, followed by mechanical compressive shrinkage if necessary.

Zantrel's Pluses

With the multitude of manmade fibers available to the textile industry today, it is obvious that any new entry into this field must have a reason for its existence. It must do something for the textile mill and the consumer public which is better or different. What does Zantrel have to offer in this area?

THE TEXTILE MILL—For the textile mill, Zantrel offers an advantage over cotton in being uniform in dyeing properties, uniform in luster, uniform in fiber diameter and length, and in being available in whatever size is best suited for a specific end-product. In intimate blends with cotton, it upgrades yarn uniformity and appearance so that a fabric made from carded yarn looks like one made from combed yarn. Because the dye absorption of Zantrel is similar to that of cotton, it presents little or no fly problem in a cotton mill. The high strength of Zantrel fiber, both wet and dry, gives yarns equal in strength to cotton. Zantrel and Zantrel/cotton blend fabrics can be wet processed on a continuous cotton range, including continuous vat dyeing. In resin treatment for "easy care", the desired effect can be obtained in Zantrel fabrics with the same add-on as for cotton, but without cotton's serious loss in strength. Zantrel/cotton blend fabrics can be mercerized. Both Zantrel and Zantrel/cotton blend fabrics can be mechanically compressive shrunk to bear the "Sanforized" label.

In blends with synthetic fibers, Zantrel upgrades yarn evenness and uniformity, as compared with cotton. Zantrel also provides its other unique characteristics, such as its subdued silk-like luster, a crisp friendly hand, dimensional stability and a very important comfort factor.

THE CONSUMER PUBLIC—At long last a manmade cellulosic fiber, which essentially combines all the desirable characteristics of cotton with those of most manmade fibers, is available to the consumer public. In Zantrel, the deficiencies of "old" rayon such as dimensional stability, launderability, wet strength, harsh metallic luster, and inability to withstand mercerization, have been eliminated. For the consumer, perhaps the most outstanding characteristic of Zantrel is its inherent dimensional stability throughout the life of the product. Another remarkable feature of Zantrel is its unique hand, which from 1.0 denier through 1.5 to 3.0 denier, passes from a soft silk-like hand, through a mercerized combed cotton-like hand, to a very crisp, firm, lofty hand. The subdued luster of Zantrel, which falls between that of silk and combed mercerized cotton, will certainly appeal favorably to the consumer. Because of its uniformity of fiber size, Zantrel gives fabrics with a clean, even appearance. Because the water absorption of Zantrel is similar to that of mercerized cotton, Zantrel fabrics provide a maximum in comfort factor for the human body. The clean bright colors of Zantrel fabrics, many of them vat-dyed, in any shade of the rainbow, as well as dark blues, browns, and blacks, are certain to have an attractive eye-appeal to the consumer.

Zantrel in the Market

Early in 1962, Zantrel products will begin to appear in volume at the retail level. Either as 100% Zantrel, or in blends with cotton or synthetic fibers, it will first be seen in men's, women's and children's apparel, both woven and knitted. At the present time, a great deal of development work is going on in many of the most important textile mills in the United States to engineer Zantrel and Zantrel blends to specific end-uses, such as percale sheeting, decorative fabrics, draperies, upholstery, blankets, bedspreads, terry cloth and towelling.

Other less advanced, but promising end-uses for Zantrel include zipper tapes, sewing thread, interlining, specialized end-uses in the automotive, paper, and pharmaceutical industries, as well as other end-uses our customers will not even tell us about.

Zantrel in the Future

The present level of properties of Zantrel is far from its ultimate. Even in the past year some improvement has been made. However, research work in this area is of a cautious type aimed, not at improving one property at the expense of other desirable properties, but rather at maintaining a balance between all the desirable properties and improving on this basis.

The most promising and important end-use for Zantrel into the foreseeable future is in intimate blends with carded cotton. It appears that, due to upgrading of fabric appearance and hand in this type of product to approximate that of carded cotton, its market potential is vast. Part of this enlarged market may well be at the expense of "old" rayon and other synthetic fibers.

The second largest potential market for Zantrel presently appears to be in end-products made from 100% Zantrel fiber. However, it could be that Zantrel, in blends with synthetics such as acrylics, polyamides, polyesters, and triacetate, will outstrip the 100% product. In both these areas, Zantrel appears to hold a promising future.

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Rayon Pulp Method

A new process for manufacturing rayon pulp of high purity from bagasse invented by Shinji Okuno (deceased) and Takasuke Okuno, Tokyo-to, Japan, has been granted U.S. Patent No. 2,992,155.

The new process comprises the steps of loosening raw bagasse and screening the loosened dry bagasse in the dry state to remove the pith powder. The fibers recovered from the screening step are boiled in a fresh acetic acid solution of a concentration of 0.05 to 0.2 per cent to remove pentosan and silicic acid. Following this the boiled fibers are treated with a caustic soda solution.

Industrial Fabrics

(Continued from page 22)

Rubber engineers used a five-ply belt of Usrex-Nylon fabric, able to withstand more than 1,000 pounds per inch. The construction incorporates the use of high tenacity rayon warp threads and heavy nylon fill members. Made in five sections at the rubber firm's Passaic, N. J., plant, the belting was shipped to the site, where it was vulcanized into one continuous, endless length and installed. Power to move the belt is furnished by eight diesel engines.

Fabric Plies Eliminated

A conveyor belt construction developed by B. F. Goodrich is now being offered for the first time for use on general industrial and overland conveyor systems. Known as "Nylock," the new design features a solid woven body impregnated with rubber and encased with rubber covers. There are no plies of fabric to separate under impact and the woven body is said to have three times the tear resistance of equivalent strength nylon-filled multiple-ply belt, according to Goodrich.

The heavy cables of long-staple cotton in the belt are interwoven with high-strength nylon into a single, interlocked unit. Strands of elastic nylon, running in both directions, lock the cotton cables in place and provide additional strength, shock resistance and fastener holding ability. The new construction is flexible, suitable for deep-trough idlers and has fastener strength equal to four plies of 42S fabric.

Rayon Belting

Turner Halsey Co., has selected high-strength American Viscose XL-I rayon staple as a basic fiber for both hose duck and belting duck material. Turner Halsey's Mt. Vernon Mills selected the rayon for belting fabrics requiring a high load capacity, and especially when temperatures of materials carried are high, such as hot slag. The rubber industry, according to American Viscose, also has shown interest in high-performance rayon for use in conveyor beltings.

Use of XL-I also permits lighter weight hose to be made. Further advantages include: it affords low cost per pound of tensile strength for lightweight hose fabrics to convey water, gases and steam; in dredging, for oil suction and discharge; and for most other high-pressure hose applications. Mt. Vernon reports that XL-I, because of its versatility, has a place in the firm's wide range of industrial fabric weights, from 3¾-ounce per square yard to 150-ounce per square yard.

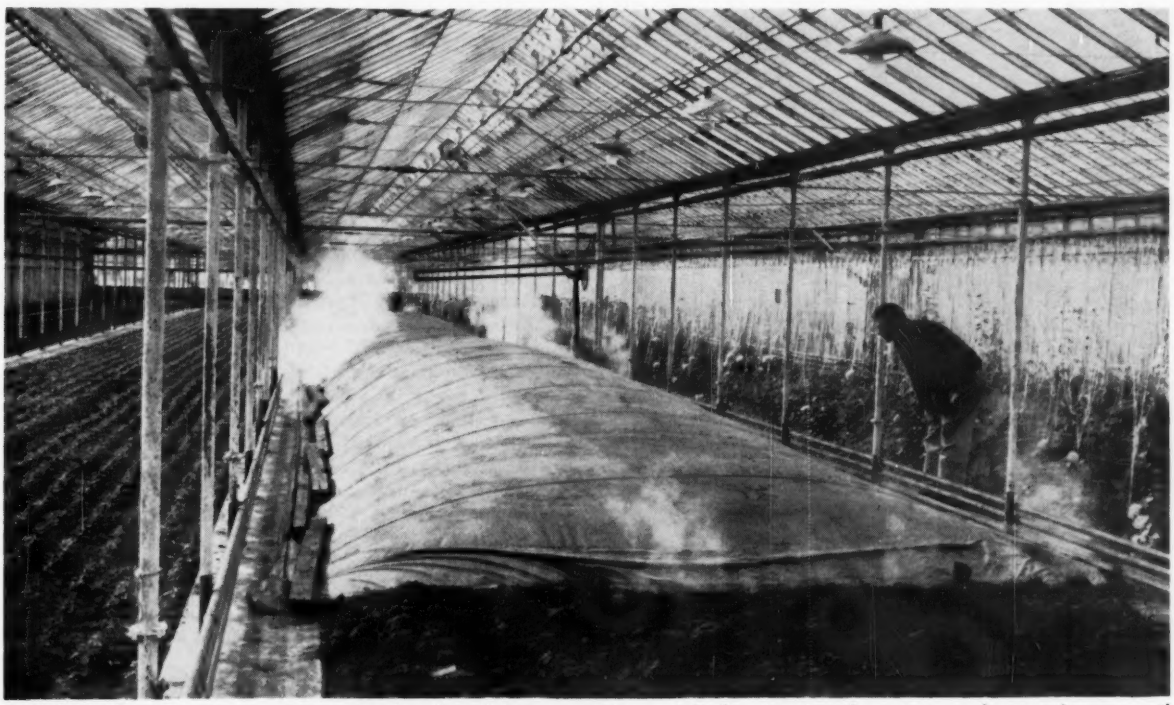
Economy and strength also are reported by American Viscose to be the primary reasons why XL-I rayon has been selected for the manufacture of wrapped hose fabrics and other industrial applications at Callaway Mills, La Grange, Ga. This Callaway unit is devoted entirely to the production of yarns and industrial fabrics for mechanical rubber goods and products for the tire trade. Its hose fabrics are used in dredging, in-flight aviation, and water hose.

Better Tarpaulins

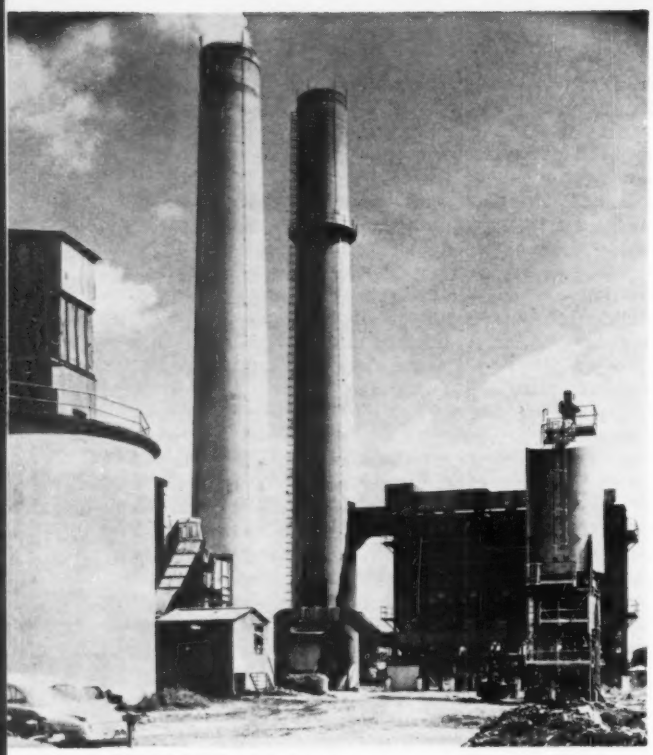
BY USING CONCRETE curing covers made of Hypalon coated nylon fabric, Concrete Materials, Inc., Charlotte, N. C., has achieved savings in maintenance and replacement costs of the covers, according to Reeves Brothers. In addition, the reliable steam tightness of the Hypalon covers has increased the efficiency of curing operations, reports Concrete Materials' Bob Jones, superintendent of the company's prestressing plant.

Hypalon-covered fabric also has been used by George Bayer & Son, Toledo, Ohio, growers of whole-

(Continued on page 64)



TIGHT LID—This neoprene-covered nylon fabric permits quick fumigation by steam of greenhouse soil



FILTRATION FABRICS were installed on right hand stack of this cement plant, none on left hand stack. Cement dust is escaping from left hand stack, while one on right shows no dust emerging

NEED FOR DUST FILTRATION is shown by this accumulation of cement dust from gutters of home near cement plants

Industrial Fabrics

(Continued from page 63)

sale cut flowers and vegetables, to cut the cost of greenhouse soil fumigation. Once each year all the beds are fumigated to sterilize the soil. This is done by laying a 110 by 16-foot sterilizing cloth over the bed and weighing it down with four-by-four lumber at the edges which rest on the 18-inch concrete walks between the beds. Steam is then introduced under the cover, ballooning it to a height of about three feet.

The Reeves neoprene-covered nylon fabric found a novel use when it was incorporated by an architectural student into the design of a geodesic house in Hollywood, Calif. The geodesic house is, in effect, a dome constructed of aluminum struts which are "skinned" with mylar. The purpose of the project is to ascertain the practical and psychological aspects of living in a geodesic dome house. The Coverlight material serves a variety of purposes—rain protection, interior light reflector and sun screen—for the edifice which is otherwise completely transparent.

Marine Fabrics

Rayntype fabric, a product of Manart Textile Co., New York, made its debut in January aboard several craft at the National Motor Boat Show in New York. The fabric, made from 100% Dynel modacrylic fiber manufactured by Union Carbide, is said to possess double the life expectancy of conventional canvas when used for protective boat covers, such as convertible tops, side curtains and cockpit canopies. Rayntype fabric, according to Union Carbide, has a life expectancy of six years as opposed to three years optimum for cotton canvas.

Air Pollution Filters

THIS WAS THE "DUST" picture in the Lehigh Valley of Pennsylvania four years ago. Within a 25 square mile area, there were 16 cement plants. The result: severe air pollution from cement dust with attendant community problems. Measurements showed that 730 tons of cement dust per square mile was falling on some communities in a single month. Property damage in Northampton, Pa., alone was estimated at $300,000 a year, and in Nazareth at $200,000. Because of its high alkali content, cement dust eats into metals and cannot be easily wiped off other surfaces.

Consequently five townships in the area enacted ordinances requiring 11 of the 16 cement plants to control the flow of dust from their stacks. Due to the installation of new dust control equipment or improvement in existing control equipment, the dustfall has been substantially reduced. Several of the plants are solving their problems by budgeting for gradual installation of glass fiber fabric filters which remove over 99% of the dust, according to Owens-Corning Fiberglas Corp. Here is what some of these cement plants have done.

Dragon Cement Co. has installed dust collectors on all four of its kilns, involving a total of 1,568 Fiberglas filter bags, each 2½-stories high; Hercules Cement Corp. has completed installation of collectors in its three kilns, using 1,968 Fiberglas bags; Universal Atlas Cement Co. put in a 540-bag Fiberglas collector; Giant Cement Co. has installed a 528-bag system, and Nazareth Cement Co. has put in a 288-bag collector.

(Continued on page 65)

(Continued from page 64)

Owens-Corning reports Fiberglas fabric filter systems are the newest of the six basic types of industrial dust collection systems. No single type is appropriate for all applications. The Fiberglas system, for which Owens-Corning supplies the glass yarn, is used principally for high temperature filtration—it can withstand temperatures in excess of 500 degrees F. typical in the cement industry, and has good resistance to chemical attack.

Glass Fiber Fabric Preferred

According to R. E. Doherty, director of the Lehigh Valley Air Pollution Control, the Fiberglas dust collection system is the only one which can meet the long-range requirements of the local ordinances for any new dust collection equipment installed: at least 98% efficiency. Under the new ordinances, old dust collection equipment in the plants must be capable of being improved to at least 90% efficiency.

Filtration Cloths

HIGH EFFICIENCIES in the filtration phase of pigment and dyestuff production resulting from the use of felt filters of Dynel modacrylic fiber, are reported by American Cyanamid Co. at its Bound Brook, N. J., plant. Cyanamid decided to use the Dynel felt because of its imperviousness to acids, ability to isolate fine particles without plugging or clogging, long life expectancy, and proficiency as a gasketing substance.

In the two years the filters have been in service, Cyanamid has found them to be "completely satisfactory" in most applications. The original set, installed in 1959 and used continuously since then, is still in good condition with a life expectancy stretching indefinitely into the future.

The high-density nonwoven filtering fabric is produced from Union Carbide's Dynel by American Felt Co., Glenville, Conn. It is employed by Cyanamid in a battery of horizontal plate-and-frame presses to extract pigments, vat dyes and dye intermediates from slurries in which the liquid is usually a 15 to 20% solution of sulfuric acid.

Gold Plating

In an electroplating plant at Linden, N. J., plating experts "gamble" $2,700 worth of pure gold many times a day on the ability of a manmade fiber to do a perfect filtering job. Never once has the fiber let them down, according to officials at Platronics, Inc.

The company specializes in precision electroplating for the electronics industry. Working to inflexibly close standards, the plant plates a variety of tiny electronic components—transistors, connectors, diodes and rectifers, with such precious metals as gold, silver, platinum and rhodium.

Dynel Used

In one process Platronics uses 24-karat gold, which is dissolved in 60-gallon batches of alkaline cyanide solution, one ounce of gold to each gallon of solution. Since the gold costs $45 an ounce, each batch contains $2,700 worth of the metal. The batch is then put in the vinyl-lined tank of an electroplating device called a jet plater, which circulates and cleanses the solution. Carbon anodes and a tumbling barrel containing the components to be plated are suspended in the solution and the current is turned on.

During the plating process the solution is continually pumped through the filter, which removes particles and dirt.

The filter tube used has perforated metal core and a multi-layer wrapping of yarn made from Dynel modacrylic fiber. According to Thomas Palumbo, Platronics' quality-control engineer, a Dynel fiber filter tube will cleanse a minimum of 30,000 gallons of solution before clogging becomes so serious that the tube must be replaced. Another characteristic of Dynel—the ease with which it can be sluiced—is important at this point. The clogged filter is permeated with the gold solution. Before

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AUTO LINER made of one piece of laminated glass fiber material developed by Johns-Manville snaps in place, has no seam

AATCC Digests

(Continued from page 34)

Effect of Softeners on Thermoplastic Resins

Frank Magnussen

Canadian Celanese Ltd.

FINISHING EXPERIMENTS were carried out on acetate fabrics using different thermoplastic resins in combination with anionic, nonionic and cationic softeners. The physical properties of resin/softener combination at different concentration levels have been investigated and the results indicate trends in sewability, stiffness, abrasion and tear strength.

Particular attention is given to illustrate which of the components, softener or resin, governs the change in physical characteristics. For instance: Four resins combined with an ethylene oxide condensate and a fatty carbamide at various concentrations were tested for abrasion. The results revealed that the abrasion depends on the softener and not the thermoplastic resin. The conclusion reached is that many fabric properties can be improved by correct choice of softener and thermoplastic resin.

New Nylon Tricot Process

A new method of knitting nylon tricot, designed to decrease the fabric's stretch and make it more suitable for use in men's pajamas, has been developed by the Bangor Division of Collins & Aikman. Working with yarn from American Enka, and in cooperation with Weldon, manufacturer of men's pajamas, the Bangor Division has produced a stabilized nylon tricot said to have a firmer, less stretchable quality than is usual with this fabric. The tricot, however, retains the intrinsic qualities of nylon tricot, including its "wash-and-wear" properties.

Bashore Knitting Sold

Flagg-Utica Corp. has purchased the Bashore Knitting Mills Co., Inc., in Schuylkill Haven, Pa. W. A. Bashore will continue as president and William Dietz as plant manager. J. T. Flagg, chairman of Flagg-Utica said Bashore will continue to operate as in the past, but on an expanded basis. The Bashore company manufactures men's and boys' athletic shirts, briefs and T-shirts.

Industrial Fabrics

(Continued from page 65)

the tube is discarded, it is sluiced with distilled water, quickly washing out the gold for reclaiming.

Lightweight Tent

Eureka Tent & Awning Co., Binghampton, N. Y., is now marketing the "Drawtite," an unusual light tent that is exceptionally water repellent and has a high resistance to tearing. The tent, with an external aluminum alloy frame, is made of a high count combed cotton cloth from Wellington Sears. The fabric weighs about three ounces per square yard before finishing.

Ingenious Fabric Tanks

New "utility tanks," portable fabric tanks for farm, construction and industrial use, have been added by Goodyear to its line of fabric containers. The utility tanks, ranging in capacity from 60 to 350 gallons, are offered in eight "small sizes," and represent an extension of the principle of "pillow tanks," with capacities up to 50,000 gallons. The smaller sizes were added for individual convenience; the 350-gallon tank weighs only 50 pounds when empty and is easily handled by one man.

The utility tanks are created from finely woven nylon fabric impregnated with rubber, a combination providing a rugged one-piece unit suitable for both static storage and transportation of liquids. The rubber coating is resistant to fuel oil, liquid fertilizer and weed sprays.

Pillow tanks, made by Goodyear since 1949, have been used for transportation of liquids of all types in rail cars, trucks and other vehicles that otherwise could not carry liquids.

Fabric-Foam Insulation

POLYESTER FOAM, laminated with 15-gauge vinyl sheeting, has been introduced as a new type of thermal insulation material by Reeves. Supplied in four by 12-foot sheets, 1-inch thick, Curon foam insulation is primarily intended for outdoor and indoor use on chemical and oil storage tanks and processing equipment. It is recommended for surface temperatures ranging from 50 to 250 degrees F. Where higher or lower insulation factors are required, the standard thickness of the sheets of one inch can be increased or reduced.

The vinyl sheeting provides the foam with a weather-resistant surface that can easily be cleaned. The sheeting is "Curonized" by bonding it to Curon polyester foam by the Reeves patented thermal lamination process. The insulation or "K" factor is: 0.25 at 32 degrees F or 0.38 degrees at 250 degrees F.

Reeves reports the foam material itself has no affinity to water and a poor capillary attraction of moisture; in effect, this means it maintains its insulating properties better than more hygroscopic materials.

Improvements in Tires

A two-ply tire said to have the same carcass strength as standard four-ply tires has been developed by The B. F. Goodrich Co. for use on compact cars. A "pilot" quantity of the tires has been undergoing testing by auto manufacturers.

E. F. Tomlinson, president of the Goodrich Tire Division, states: "While the new tire has only two layers of Tyrex rayon cord in the tire body, its cords are much larger and stronger than those used in conventional tires. In fact we use as many pounds of Tyrex in the two-ply tire as in the four-ply. Tire strength is directly related to the quality and weight of cord used." The Goodrich official said that because the two-ply tire has a thinner sidewall and fewer plies to generate internal friction, it allows increased flexing without excessive heat build up and gives a softer ride.

Officials of Corduroy Rubber Co., Grand Rapids, Mich., have switched to making all Corduroy tires of nylon cord. When the company offered nylon cord tires at rayon tire prices last year, nylon captured 90% of the sales; a decision was made then to cease all rayon production. The major reasons for the switch to nylon production exclusively, a Corduroy official said, are the "incredibly small" number

(Continued on page 68)

FABRIC Tank of nylon impregnated with rubber is light in weight, highly transportable for farm, industrial use

Industrial Fabrics

(Continued from page 67)

of adjustments with nylon as compared with rayon, and simplification of manufacturing procedures and inventories.

Nylon's increasing penetration of the tire cord market was stressed sharply by recent industry figures disclosing that almost 50% of all passenger tire replacement sales in 1960 were nylon cord tires, according to Du Pont. Truck and bus owners also indicated a growing preference for nylon tires, Du Pont said the statistics showed.

M. G. Gamble, director of marketing services for Du Pont's Textile Fibers Department, pointed out that "considering that nylon's share of the total passenger tire replacement market was only 20% in 1956, this represents a remarkable gain."

Du Pont said confirmation of the trend toward nylon is contained in U.S. Bureau of Census data recently published. These figures show that nylon tire cord production in 1960 reached 139 million pounds, a 15 million pound increase over 1959. Rayon tire production in 1960 dropped by more than 55 million pounds from the previous year.

Improved Nylon Tire Yarn

Du Pont also has made initial shipments of an improved nylon tire yarn—Type 714 nylon. The new yarn is being produced by an entirely new manufacturing process. In evaluation tests, tire companies report improved adhesion and up to 25% better fatigue resistance than other yarns, according to Du Pont.

A company official says the new manufacturing process provides greater flexibility and a much wider latitude for development of even better nylon tire yarns in the future.

Nylon was first used as a tire reinforcing material in 1940. Nylon then used in tires had a strength of about 6 grams per denier. Over the years, nylon yarn strength has been increased, and with the introduction of Type 714, it now stands at more than 9 grams per denier.

Stronger Rayon Tire Yarn

Improvements continue in Tyrex rayon tire yarn. Recently, American Viscose Corp. announced the availability of a rayon tire yarn said to be 15% stronger than earlier yarns for this purpose. The new yarn gives a tensile strength of more than 40 pounds in a standard 1650 two-ply tire cord.

New Du Pont Nylon

Du Pont is now producing on an experimental scale a high-temperature-resistant fiber (density 1.38) and designated HT-1. Generically, it is a polyamide, but differs from conventional nylon fibers by its ability to perform acceptably in high-temperature applications above the melting point of existing polyfibers (482 degrees F. for Type 66 nylon). At this temperature, HT-1 retains well over half of its room temperature strength of 6 grams per denier.

In addition, HT-1 does not melt and is ignited only with difficulty at temperatures above 1,000 degrees F., decomposing in the process to a friable char. Other physical characteristics include a high modulus (150 to 160 grams per denier) and dimensional stability either to boil-off (2% shrinkage) or high-temperature dry heat (5% shrinkage at 650 degrees F.).

The limited quantities of HT-1 are being channeled into end-product evaluations, primarily of an industrial nature, to define the performance advantages it can offer in high-temperature applications such as beltings, hoses, tires, coated fabrics, protective clothing, filters, and electrical insulation. Military problems of a more specific nature also are being explored. A pilot unit is now under construction at Richmond, Va., and is scheduled to go on-stream late in 1962.

HT-1 is currently being produced as a continuous filament yarn of 200 denier, 100 filaments with approximately one to 1.5 turns of "Z" twist.

New High Modulus Rayon

Suprenka Hi-Mod—a new high modulus industrial yarn, is now being commercially produced by American Enka Corp. at its Lowland, Tenn., plant. Suprenka provides excellent stability during processing because of its low shrinkage when heated or when moistened, Enka reports, and in use the new yarn has low growth under load.

Enka has widely sampled the yarn for a number of industrial end uses. Manufacturers of V-belts are said to be enthusiastic about it because of its good dimensional stability. Other end-use areas include: conveyor belts, ducks, radiator hose, carpets and tapes. Prices for all packages are: 1100/1100 at 67 cents; 1650/1644 at 61 cents, and 2200/2160 at 58 cents. Enka also produces three other industrial rayon yarns: Enka 5000 tire yarn (Tyrex), Suprenka "M" and "MS", and Suprenka 2000.

Rayon Strapping

Strapping, made of high-tenacity rayon cord, is finding increased usage in the baling of gray goods, according to the Industrial Packaging Department of American Viscose Corp. The departments reports that more than 40 cotton textile manufacturers in southeastern United States are using the firm's Avistrap cord strapping in this application because of these features: economy, ease of handling, and safety.

Avistrap is used in widths of ½ to ¾-inch on bales weighing up to 800 pounds, in the identical widths as were formerly required for steel strapping. This development is said to owe its rapid success to the "Selta method" of baling originated by the Selta Corp., Charlotte, N. C., an Avistrap distributor. Overall savings of between 20% to 35% are said to result from the use of the Selta method.

Other advantages of Avistrap and the Selta method are: straps as fast or faster than steel, there is no rust or oil to damage goods, customers can easily remove the strapping, and there is no disposal problem since used strapping may be thrown away or burned.

American Viscose has developed an automatic strapping machines, the Avistrapper, for use with the rayon cord. Model AVM-1 is for smaller strapping applications, with the Model AVM-2 able to strap packages in a range of from 15 by 15 inches to 36 by 36 inches without machine adjustment, in any length, and in any width of Avistrap from ¼ to ¾-inch.

Trampolines and Dragons

Application of manmade fabric materials in any field should not be surprising, including their use as trampolines and "dragons." L. S. Brown Co., Atlanta, Ga., found it needed a suitable fabric for trampolines set up over pits—as against those raised on legs—which could be perforated to permit air to pass

BOUNCY NYLON—For this trampoline, a coated nylon fabric made by Reeves Brothers was found to give excellent service

through on the downward bounce and thus reduce resistance to the downward bounce. At the same time, the fabric had to stand up under almost limitless rough use. It discovered that a 32-ounce coated nylon fabric—made by Reeves could do the job.

The Brown firm uses the Coverlight-H fabric for the main trampoline bed; air holes die-cut into the fabric require no special finish. Thick cushion pads —covered with a Reeves weather-resistant 10-ounce vinyl coated nylon—surround the jumping bed to protect jumpers who lose their balance.

The "dragon"—a friendly one—was designed for the annual Macy's Thanksgiving Day parade in New York. The 70-foot long monster joins Popeye the Sailor, the Gorgeous Gobbler and an observation balloon as the fourth inflated coated-fabric balloon towed overhead by marchers in the parade.

Like its predecessors, the happy dragon was created by Goodyear. Two dozen men control the beast, restraining the 6,500 cubic feet of helium that keep it aloft. The dragon's 600 square yards of fabric and 82 gallons of paint weigh 250 pounds.

Fiber Glass Boats

FIBER GLASS BOATS have come a long way since 1953—the first year in which a small trend could be noticed. Some 5,000 fiber glass boats were manufactured that year.

By 1957 there was a 10-fold increase in the manufacture of such boats, to 50,000 units, according to Johns-Mansville. Production in 1958 reached 85,000 units, or 30% of the national total. In 1959 there was a 40% jump to 130,000 boats, and 1960's total of 155,000 means that fiber glass is fast approaching 50% share of the boating market. Some experts in the marine field estimate that fiber glass boat production will hit the 300,000 mark by 1964, or a solid 65% of the national total.

These boats, incidentally, are not just little boats. They range from 8-foot dinghies to 67-foot luxury cruisers—including outboard and inboard runabouts, canoes, rowboats, catamarans, sailboats.

Why are fiber glass boats popular with buyers? First, their construction. There are four principal methods in use today for building fiber glass boats: molding by matched dies, pressure bag, vacuum bag, spray-up and hand lay-up. The latter method is probably the most widely used.

Lapped-over layers of fiber glass woven roving, fabric and mat are hand laid into a sturdy fiber glass mold. Each layer is "wet out" with plastic resin, squeegeed into position and curing time allowed between each operation. The final laminated boat hull, deck or part results from the natural "set up" of the layers of woven fiber glass and resin.

Such construction add up to another prime reason why boat owners want fiber glass craft—their minimum maintenance. Fiber glass boats are virtually indestructible—they won't rust, corrode or rot; they don't need sanding, scraping or caulking; their molded-in colors are said to stay fresh for years; hulls and decks are unaffected by extreme temperatures.

Siness Heads Du Pont's Textile Fibers Dept. Buchanan Retires

Lester S. Sinness, assistant general manager of Du Pont's Textile Fibers Department, was named general manager to succeed Andrew E. Buchanan, Jr., when he retires at the end of November. The appointment is effective December 1. Du Pont also appointed Russell C. Weigel an assistant general manager of the Textile Fibers Department, effective October 16. Weigel, who is now assistant general manager of the company's Polychemicals Department, will be succeeded by Roy L. Schuyler, Jr., director of that department's Polyolefins Division.

Sinness joined Du Pont as a research chemist in 1935 at the Richmond, Va., rayon plant. In the ensuing six years he advanced to assistant director of rayon research at that location and in 1943 his headquarters were transferred to Wilmington. Later that year he was promoted to director.

Sinness became assistant manager of the Rayon Technical Division in 1950 and held that position until the department was reorganized a year later. At that time he was made director of manufacturing for "Orlon" acrylic fiber. The production of acetate fiber also came under his responsibility until he was promoted to director of sales for all five Du Pont fibers in 1953. Sinness remained in the Sales Divisions, advancing to manager then to general director, until his appointment as assistant general manager of the department in 1955.

McChesney Heads TCMA

John M. McChesney, Jr., president of Leatex Chemical Co., was elected president of the Textile Chemical Manufacturers' Association at the trade group's recent annual meeting. Also elected were: Fritz O. Robitschek, president of Onyx Oil & Chemical Co., as vice president, and William H. Bertolet, III, of Laurel Soap Manufacturing Co., as secretary-treasurer.

C&A's Star

(Continued from page 48)

Miller Co. with a mill in Concord, N. C. This division now produces a line of high quality flat furniture upholstery cloths to augment C & A's established lines of pile upholstery fabrics. Buell Little is acting general manager.

In 1952, a weaving plant was acquired in Siler City, N. C., to become part of the automotive division as a producer of flat fabrics. To augment, the Siler City operation, a dyeing and finishing plant was built in Albemarle, N. C. Vice president Robert Stroker is general manager of this division.

The program of expansion was also extended to Collins & Aikman's Canadian operation which the company had first set up in 1929. To its existing plant in Farnham, Quebec, the company then added a second plant by purchasing the Avalon Co. a furniture fabrics manufacturer with a plant in Stratford, Ontario. Collins & Aikman's Canadian subsidiary, of which Charles S. Maxwell is president, now manufactures, in addition to furniture and automotive fabrics, toy and pile apparel cloths.

To cap its decade of rapid expansion and diversification, Collins & Aikman in 1960 made a surprising move. It acquired Bangor Mills of Penn Argyle, Pa., a large producer of tricot fabrics for the lingerie industry, of which George A. Tunick is general manager. In the same year, the company made another radical step in product diversification by sending into the market a new product, Cloud 9, a high pile throw rug in brilliant colors. Breaking new ground for Collins & Aikman, the rug is sold attractively packaged directly to retailers, In 1960 also, Sherpa, a fine gauge tufted pile fabric for outerwear, was introduced.

Autonomous Divisions

With these expansions and product diversification, Collins & Aikman went through sweeping internal changes. The tight, centralized set-up that had been in force for many years, in which virtually all important decisions were made by the president, was abandoned. A more flexible divisional organization was established in its place. Under the new system, the various general managers of the company's six divisions and Canadian subsidiary were given the responsibility and authority to run their own divisions within the framework of overall company policy.

Last June, Ellis Leach was made chairman of the board of directors. Succeeding him as president is Donald F. McCullough, a son of Willis G. McCullough who was president of the firm from 1919 to his death in 1947. Although there is not space here to tell the story of Willis McCullough, he is undoubtedly the man who deserves the most credit for building the strong Collins & Aikman company on which the "new" Collins & Aikman of diversified product lines is built.

Donald McCullough, who is 36, joined the firm in 1946 after taking a B.S. degree at Yale's Sheffield Scientific School and serving briefly in the Navy. He worked in yarn and automotive fabrics sales until 1951 when he returned to the Navy to put in 22 months of sea duty during the Korean War. He came back to C & A in 1953 and became executive vice president for sales. His brother, executive vice president Robert W. McCullough in charge of manufacturing, has been with the firm since 1946. Derived from the long association of Willis McCullough with Collins & Aikman, the McCullough family interests currently hold about 15% of the corporation's stock.

With regard to the years ahead management at Collins & Aikman looks forward with confidence. It is the feeling of Ellis Leach, Donald McCullough and the men, already mentioned, who head up the company's divisions, that Collins & Aikman, a strong well-grounded fabric manufacturer, has successfully prepared itself for a prosperous existence in the textile markets of the future. Specifically they believe that a fresh, imaginative approach toward the development of new products as well as the revitalization and redesigning of established fabrics in the light of new requirements and the properties of new fibers offers Collins & Aikman broad opportunities for profitable sales.

Bonding Laminates

(Continued from page 50)

texture of the duck producing a permeable film. If a waterproof fabric-foam laminate (in Britain fabric-foam laminates are called foambacks) is planned, a thicker film of adhesive is used to act as a seal. If silicone finishes are to be employed, these have to be applied after the fabric has been combined to the foam. At normal room temperatures the adhesive film takes four days to cure. This curing can be speeded by storing the laminate in a heated room.

Commercial speeds for the process are hard to calculate. With the I.C.I.-built prototype, laminating speeds of up to 15 yards a minute have been reached. But these were with woven fabrics; knitted fabrics tend to slow down the process.

Biggest advantage of the Daltoflex method is the saving in foam. In flame bonding with a 3/32 inch thick sheet of foam one third of the foam thickness is lost in the bonding. At British prices this is calculated at a loss of about nine cents worth of foam per square yard. The local price for the adhesive used in the Daltoflex process is about four cents per square yard. Additionally, a Daltoflex unit is cheaper to build and run than a conventional flame combining unit.

AATT Piedmont Chapter To Meet November 30

At a dinner meeting on Nov. 30, the Piedmont Chapter of the American Association for Textile Technology will hear reports on a new type of Creslan acrylic staple and tow to be presented by representatives of Creslan's producer, American Cyanamid Co. A paper on the properties and processing of the new fiber, Creslan Type 61 will be delivered by Dr. N. H. Marsh, technical director of Cyanamid's fibers division. William H. Kieffer, marketing director of the division, will present a second paper discussing the new fiber's applications and marketing potential. All interested persons are invited to attend the meeting. Reservations and further details may be obtained by getting in touch with Howard Elsom, program chairman, Box 1414, Charlotte, N. C.

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarn, staple and tow as reported by the producers in October 1961. All prices are given to change without notice.

CELLULOSIC YARNS

ACETATE

American Viscose Corp.

Current Prices Effective March 22, 1960

Bright and Dull

Denier & Filaments	Intermediate Twist** Twister Cones	Twister T-Tubes	Warps	Spinning Twist Cones & C-Tubes	Warps
40/11	$	$	$	$	$1.14
45/14					1.03
55/14-20	.99	.97	1.00	.93	.87*
75/18					.90
75/20	.95	.93	.96	.89	.90
100/28	.91	.89	.92	.85	.86
120/32	.82	.80	.83	.76	.77
150/36					.70
150/41	.74	.73	.75	.69	.70
200/54	.70	.69	.71	.66	.67
240/80	....	....	....	.65	.66
300/80	.66	.65	.67	.62	.63

* Tricot Spools Only.
** Standard Twist 2¢ Additional.
Terms: Net 30 Days.

Celanese Fibers Company

Current Prices Effective March 22, 1960

Acetate Filament Yarn Prices
Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	4-Pound Cheeses	Spinning Twist Cones	Beams	O Twist Tubes
45/13	$1.12	$1.13	$	$	$1.03*	$ ....
55/15	.99	1.00	....	....	.87*	.82
75/20	.95	.96	....	.89	.90	.86
75/50	.97	.98	....	....	.92	....
100/26-40	.91	.92	....	.85	.86	....
120/40	.82	.83	....	.76	.77	....
150/40	.74	.75	.74	.69	.70	....
200/52	.70	.71	....	.66	.67	....
240/80	.68	....	....	.64	....	....
300/80	.66	.67	....	.62	.63	....
450/120	.66	.67	....	.62	.63	....
600/160	.65	.66	....	....	....	....
900/80-240	.63	.64	....	....	....	....

* Tricot beams only. This item with Permachem—$.05 additional.
3T/10 electrical finish available at no premium.

3 to 5 turns on Cones or Beams	$.02 Additional
Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn
150 Denier 12-TM Tubes	$.73
3 Pound Cheeses	$.01 Less than 4-lb. Cheeses
2-BU and 4-BU Tubes	Same price at 4 & 6-lb. cones
Premium for Serving Tubes	$.05
Part Cone Premiums: 2-lbs.	$.05
1-lb.	$.10
Under 1-lb.	$.20

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
•150/40	1.11	1.12	1.06	1.07
200/104	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/240	.94	....	....	....

* 150/2Z/40 available in all colors. Contact our District Sales Representative for current availability of colors in other denier.

Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn

Celaperm Black Yarn Prices

Effective March 22, 1960

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

3 to 5 turns on Cones or Beams	$.02 Additional
Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.
Prices subjet to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Acele"* Acetate
Bright and Dull

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Beams
55-18	$.82	$.86						$1.00
55-24	.82	.86						1.00
75-24	.86	.89		$.90			$.95	.96
75-50				.92				.98
100-32	.82	.85	$.85	.86		$.89	.91	.92
120-50	.73	.76		.77			.82	.83
150-40	.66	.60	.69	.70			.74	.75
200-60	.65		.66				.70	
240-80		.65	.65				.69	
300-80	.60	.62	.62	.63			.66	
450-120	.61		.62				.66	
600-160					$.65		.65	
900-44					.63***			
900-240	.61**						.63	
1800-88					.61***			.62***
2700-132					.61***			
3000-210					.61			

1800 Type 20 only.
(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.
** Bright only 2" Tubes.
*** Type 20 only.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist Cones	Beams
75-24	$1.18	$1.28		$1.29	$1.34	$1.35
100-32	1.14			1.23	1.28	1.29
150-40	1.03	1.06	$1.06	1.07	1.11	1.12
300-80		.97			1.01	1.02

Black

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 4 & 6 Lb. Tw. Tbs.	Cones	Beams
75-24	$.98	$1.08		$1.09		$1.14	$1.15
100-32	.94			1.03	$1.06	1.08	1.09
150-40	.83	.86	$.86	.87		.91	.92
300-80	.75	.77				.81	
900-44					.74*	.74	

* 2 & 4 lb. ⅝" tbs. is same price as 4 & 6 Tw. Tbs.

Specialty Yarns
Cycloset for Tricot

	Tubes	Beams
40-13 Natural	$1.07	$1.14
45-13 Natural		1.03
55-18/24 Natural	.83	.87
75-24 Natural	.87	.90
100-32 Natural	.83	.86
40-13 Black	1.22	1.29
55-18 Black	1.08	1.12

Terms: Net 30 days. Subject to change without notice.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.
* Dupont's Trademark for its acetate yarn.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.
Current

"Estron"* Yarn, Bright and Dull — White

Denier & Filament	Regular Twist Cones	Beams	Intermediate Twist Cones	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Zero Twist
55/13	$1.01	$1.02	$0.99	$1.00	$0.93	$0.94	$0.82	$0.87	$0.86
75/19	.97	.98	.95	.96	.89	.90	....	.90	....
75/49	.99	1.00	.97	.98			....	....	....
100/25	.93	.94	.91	.92	.85	.86	....	....	....
120/30	.84	.85	.82	.83	.76	.77	....	....	....
150/38	.76	.77	.74	.75	.69	.70	.66	....	....
200/50	.72	.73	.70	.71	.66	.67		....	....
300/75	.68	.69	.66	.67	.62	.63	.60	....	....
450/114	.68	.69	.66	.67	.62	.63	....	....	....
600/156	.67	.68	.65	.66	.62	.63	....	....	....
900/230	.65	.66	.63	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	$1.34	$1.35	$1.32	$1.33	$1.26	$1.27
75/19	1.31	1.32	1.29	1.30	1.23	1.24
100/25	1.25	1.26	1.23	1.24	1.17	1.18
150/38	....	....	1.06	1.07	1.01	1.02
300/75	....	....	.96	.97	.92	.83
450/114	....	....	.94	.95	.90	.91
900/230	....	....	.89	.90	....	....

Current Prices

"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.
Prices on special items quoted on request.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.
* "Estron" is a trade-mark of the Eastman Kodak Company.
* Chromspun is a trade-mark of the Eastman Kodak Company.

RAYON

American Bemberg Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Twist Skeins	Twisted Skeins & Cones	8½ Turns	High Twist Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.29	1.55	....	....	....	1.85
65/45	1.22	1.38	....	$1.61	....	1.66
75/60**	1.11	1.25	....	1.48	$1.53	1.56
100/74**	1.02	1.15	....	1.40	1.45	1.51
125/60	1.01	1.12	$1.16	1.37	....	....
150/120	.99	1.08	1.18	1.33	....	....
300/225	....	1.01	....	....	1.14	....
900/744	....	.91	....	....	....	....
1800/744	....	.91	....	....	....	....

* Includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.
** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"4" HH Spool Spun Yarn

Den/Fil	No Twist Tubes	No Twist Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.05	1.05	....	....	....	....	....
65/45	1.13	....	....	....	....	$1.50	....
75/45*	1.04	....	$1.15	$1.15	$1.38	1.38	$1.46
100/60*	.96	....	1.10	1.10	1.30	1.30	1.38
125/60	.91	....	1.06	1.06	....	....	....
150/90*	.83	....	.87	.87	1.21	1.21	1.30
150/120	.87	....	.99	....	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" Spool Spun Yarn

Den/Fil	No Twist Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.48	1.58	1.58	$1.78	$1.88
100/60	1.38	1.48	1.48	1.68	1.78
150/90	1.21	1.28	1.28	1.63	1.73
300/120	1.21	1.28	....	....	....

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.50	$1.40
1519**	155/90	....	....	1.50	1.40
2008***	200/120	....	....	1.11	1.01
3002	315/180	$1.15	$1.05	....	....
4011	410/224	1.15	1.05	....	....
6001	600/360	1.13	1.03	....	....
8001	860/450	1.13	1.03	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.
** Code 1519 can be run in filling.
*** Available in 10 turns at 5¢ extra per pound.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones
9650	70/45	$1.69
9669	100/60	1.53
1545	150/90	1.35
9730	285/135	1.15
9792	450/225	1.15
9819	600/372	1.12
9837	940/372	1.02

"Spun Dyed Cupracolor is spun 150 deniers at .30¢ per pound extra, 285 and 940 deniers at 35¢ per pound extra. Cupracolor Black comes in all deniers."

STRATA SLUB

Code	Den/Fil	Twisted Cones	Price
9747	275/225	3½ Turns	$1.25
9798	450/372	2½ Turns	1.15
9823	600/372	2½ Turns	1.10
9847	960/372	2½ Turns	1.02
9885	1290/372	1½ Turns	1.00
9934	2680/744	1½ Turns	1.00

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Twisted Cones	Price
9699	150/148	2½ Turns	$1.35
9769	300/224	2½ Turns	1.25
9782	450/270	2½ Turns	1.05
9809	600/360	2½ Turns	1.05
9840	900/450	2½ Turns	1.00
9924	2000/744	2½ Turns	.95

TUSSON

Code	Den/Fil	2½ Turn Cones	3½ Turn Cones
9668	100/60	....	1.58
9678	150/90	$1.35	....
9745	285/135	1.15	....
9783	450/225	.85	....
9821	600/372	.80	....
9828	940/372	.75	....

Spun Dyed Cupracolors 30¢ extra per lb.
Available in 450 denier only.
Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice.

American Enka Corp.

Current Prices
Effective February 29, 1960
Standard Quality Yarns

Den./Fil.	Luster	Turns		NATURAL Weaving Cones	Weaving Beams	Skeins Long	Skeins Short	Cakes	Knitting Cones
50/18	E	5	S	....	....	....	....	....	1.63
50/20	B	4	S&Z	....	....	....	....	1.52	1.64
75/10	B	3	S&Z	....	....	....	....	1.02	....
75/18	E	4	S	....	....	....	....	....	1.14
75/30	B	2.5,4	S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/30	B	8	S	1.24	....	1.49	1.59	1.12	1.24
75/45	P,E	2.5,4,5	S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/60	B,P	3,4	Z	1.16	....	....	....	1.04	....
100/14	B	3	S&Z	....	....	1.15	1.23	.90	....
100/40	B,E	12	S&Z	....	....	....	....	....	1.29
100/40	B,P,E	4,5	S&Z	.98	....	....	....	.90	.98
100/40	B	6	S	1.17	....	1.34	1.44	1.09	....
100/40	B,P	2.5,4	S&Z	.98	.98	1.15	1.23	.90	....
100/60	B	4	S&Z	....	....	....	....	.90	....
100/60	E	2.5	S	1.00	1.00	....	....	.92	....
125/40	E	3	Z	.95	.95	....	....	.87	.90
125/50	B,P	3	S	.96	.96	....	....	....	....
150/40	B,E	0		.745	....	....	....	....	....
150/40	B,P,E	2.1,3	S&Z	.82	.82	.96	1.03	.78	.82
150/40	B,E	5	S&Z	.90	.90	1.15	1.25	.86	....
150/40	B,E	8	S&Z	.95	.95	1.20	1.30	.91	....
150/60	B	3.0	S	.82	.82	....	....	....	....
150/90	E	2.1	S&Z	.83	.83	....	....	.79	....
200/40	B	2.1	S	.81	.81	.94	1.01	.77	....
200/40	P	3	Z	....	....	.94	1.01	.77	.81
250/60	P,E	2.4	Z	....	....	.93	1.00	.77	.80
300/30	E	3	S	.81	.85	....	....	....	....
300/40	B	3.2	Z	.73	.73	....	....	....	....
300/50	B,E	3	S	.73	.76	....	....	....	....
300/60, 120	B,P,E	2.1	S&Z	.73	.73	.82	.89	.71	.73
300/60	B	3.5	S	.73	.73	.82	.89	.71	....
300/60	B	6	S	.86	.86	....	1.00	.84	....
300/120H.T.	B	2.5	S	.75	.75	....	....	.73	....
450/60	B	3	S	.69	.71	....	....	.67	....
450/80	B,E	3	S	.69	.71	.78	.85	.67	....
600/80	B,E	3	S	.73	.75	....	....	....	....
600/120	B,E	3	S	.69	.71	.78	.85	.67	....
900/50	B	3	S	.69	.71	....	....	.67	....
900/120	B	3.4	S	.69	.71	.78	.85	.67	....
900/120H.T.	B	3.4	S	71	.71	....	....	.69	....

B = Briglo E = Englo (Dull)
P = Periglo (Semi-Dull) H.T. = High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Weaving Beams	Colors
100/40	Regular	2.5S	$1.35	$1.35	All
150/40	Regular	2.1S	1.17	1.17	All
200/40	Regular	3.0S	1.28	1.28	All
300/120	Regular	2.1S	1.09	1.09	All
450/80	Regular	3.0S	1.05	1.05	All
600/80	Regular	3.4S	1.04	1.04	All
300/40	High	3.4S	1.11	1.11	All
900/120	High	3.4S	1.06	1.06	All

® Registered Trade Mark for American Enka Solution-dyed Rayon Yarn.

Skyloft® (Lofted Rayon Filament Yarns) Natural and Jetspun®

Denier	Denier per Filament	Twist	Cones or Tubes Natural	Cones or Tubes Black	Other Colors
5300	15	3.0S&Z	$.65	$.75	$.82

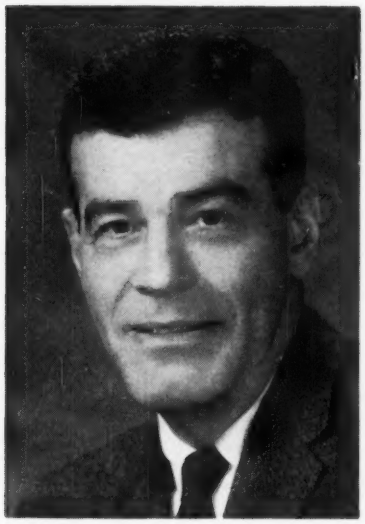
Registered Trademark for American Enka Texturized yarn.

News Briefs

Norman Swift Promoted

Norman Swift has been appointed manager of public relations for Midland-Ross Corp. He was previously in charge of public relations for Industrial Rayon Corp. which was merged recently with Midland-Ross.

A former newspaperman, Swift worked as a reporter, feature writer and editor for papers in



New York and New Jersey. He joined Industrial Rayon in 1946 after three and a half years of military service with the air force during World War II.

In his new position Swift, who will be located at Midland-Ross' executive offices in Cleveland, will be responsible for all corporate public relations activities as well as functioning in an advisory capacity to the company's nine divisions in this country and its Canadian subsidiary.

Putnam's Larger Quarters

Putnam Mills Corp. has moved to larger quarters at 49 West 37th St., New York 18, N. Y. The firm, which handles nylons, rayons, acetates and cotton goods, had been located at 209 West 38th St. for the past 22 years.

Fabric Associates Formed

Fabrics Associates, 15 Exchange Pl., Jersey City, N.J., has been formed by George A. Fenton, Weldon G. Helmus and Winston Sizer. The new organization will act as special representative for the Woven Goods Division of Sackner Products, Inc., Grand Rapids, Mich. Sacker, a pioneer in the production of paper textiles, recently broadened its lines to include many natural and manmade fibers.

American Viscose Corp.

Effective October 13, 1959

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	Cones Tubes	Beams Spools	Cakes
		Regular Turns					
75	10-30	Bright	$1.41	$1.32	$1.14	$1.14	$1.02
75	30	Dull	....	....	1.14	1.14	1.02
100	14-40	Bright	1.23	1.15	.98	.98	.90
100	60	Dull	....	....	1.00	1.00	.92
150	24-40	Bright	1.03	.96	.82	.82	.78
150	40	Semi-Dull	1.03	.96	.82	.82	.78
150	40	Dull	....	....	.82	.82	.78
150	90	Dull	....	....	.83	....	.79
200	10-44	Bright	1.01	.94	.81	.81	.77
250	60	Semi-Dull & Dull	1.00	.93	.80	.80	.77
300	15	Bright	....	.85	.78	.78	....
300	30	Dull Flat Filament	....	....	....	.85	....
300	44	Bright & Dull	.89	.82	.73	.73	.71
300	234	Dull	....	....	.83	....	.81
450	60-100	Bright	....	.78	.69	.71	.67
600	100	Bright & Dull	....	.78	.69	.71	.67
900	50-100-150	Bright	....	.78	.69	.71	.67
1200	75	Bright	....	.78	.69	.71	....
2700	150	Bright	....	.78	.69	.71	....
		Extra Turns Per Inch					
150	40	Bright 6-Turns	$1.25	$1.15	$ .90	$ .90	$ .88
200	44	Bright 6-Turns	....	1.05	.96	.96	....
300	15	Bright 5-Turns	....	....	.86	.86	....
300	44	Bright 4.3-Turns	....	....	.81	....	.79
300	44	Bright 6-Turns	.97	.90	.86	.86	.84
300	120	Rayflex 6-Turns	....	....	.93	.93	....
600	30	Bright 5-Turns	....	.86	.82	.82	.80
		Rayflex Yarns					
150	40-60	Rayflex	$	$	$ .85	$ .85	$ .81
200	75	Rayflex	....	....	.84	.84	.80
300	60-120	Rayflex	....	....	.75	.75	.73
450	120	Rayflex	....	....	.71	.71	.69
600	234	Rayflex	....	....	.71	.71	.69
900	350	Rayflex	....	.80	.71	.71	.69

Spun Dyed Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	$1.71
100	Regular Strength	1.35
150	Regular Strength	1.17
200	Regular Strength	1.14
300	Regular Strength	1.09
450	Regular Strength	1.05
600	Regular Strength	1.05
900	Regular Strength	1.05
300	High Strength	1.11
450	High Strength	1.06
900	High Strength	1.06

Avicron Yarns

Avicron Yarns

Denier	Filament		Cones/Tubes Beams/Spools
1800	100-200	Singles & 2 Ply	$.61
2700	150-300-980	Singles & 2 Ply	.58
2700	980	Singles 5 TPI	.61

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams		$170.00 each
Metal Section Beam Racks		75.00 each
Metal Tricot Spools—14" flange		30.00 each
	21" flange	60.00 each
	32" flange	150.00 each
Metal Tricot Spool Racks	14" flange	135.00 each
	21" flange	100.00 each
	32" flange	75.00 each
Wooden Tricot Spool Crates		20.00 each
Cloth Cake Covers		.05 each

Same to be credited upon return in good condition—freight collect.

Celanese Fibers Company

Effective October 12, 1960

Viscose Rayon Filament Yarn Prices—Bright and Dull

Denier/Fil/Twist		Beams	Cones	Cakes
75/30/2Z		$1.11		
75/30/3		1.11	$1.10	$.98
100/40/2Z		.97		
100/40/3		.97	.96	.88
100/40/5			1.02	.95
100/60/2Z	NS	.97	.96	
100/60/3			.98	.90
125/40/2Z		.95		
125/40/3		.95	.94	.87
150/40/0	NS		.74½	
150/40/2Z		.81		
150/40/3		.81	.79½	.76
150/40/5			.90	.86
150/40/8			.95	.91
150/40/10			.98	.94
150/90/0	NS		.77½	
250/60/0	NS		.74	
250/60/3			.80	.77
300/50/0	NS		.70	
300/50/2Z		.72		
300/50/3		.72	.70½	.69
450/60/0	NS	.68	.67	
450/60/3		.70	.69	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U. S. A.

Prices subject to change without notice.
All previous prices withdrawn.
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Industrial Rayon Co.,—Div. of Midland-Ross

Effective June 15, 1961

Continuous Process Textile Yarns

Denier	Filament	Turns per In.	Type	Beams	2.8# Cones	4.4# Cones and Tubes
150	40	2.5"S"	Dull	.82	.82	
150	40	2.5"S"	Bright	.82	.82	
200	20	2.5"S"	Bright	.81	.81	
300	44	2.5"S"	Bright	.73	.73	
450	60	2.0"S"	Bright	.69		.69
600	90	1.5"S"	Bright	.69		.69
900	50	2.0"S"	Bright	.69		.69
900	150	2.0"S"	Bright	.69		.69
1100	480	2.0"Z"	Bright-extra strong	.66		.66

Lustre #4 is semi-dull.
Prices are subject to change without notice.

Strawn Monofilament

Denier	Filament	Turns per In.	Type	4.4# Cones	Spools and Tubes
450	1	0	Bright and Dull	1.00	1.05
1250	1	0	Bright and Dull	1.00	1.05

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in continental United States except Alaska.
Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Denier/Filament Normal Strength Yarns — NARCO	Twist	Knitting* Cones	No Twist Knitting Cones	Weaving Cones, Velvet Cones, Beams, Tubes**	Untreated Cakes
75/30	3.5			1.14	1.02
75/30	7			1.27	
75/30	12			1.35	
75/30	15			1.37	
75/30	20			1.40	
100/40/60	3.5			.98	.90
100/40	12			1.22	
125/25/60	3			.96	.87
125/52	10			1.13	
150/42	0		.74½		
150/42/60	3	.80½		.82	.78
300/75	0		.71		
300/75	3	.73		.73	.71
900/46	2.5	.69		.69	
1800/92	2.5	.69		.69	

* Oiled Cones $.01 per pound extra for Graded Yarns only.
** 1 lb. Tubes $.02 per pound extra for Graded Yarns only.
"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

TRIACETATE

Celanese Fibers Company

Current Prices

Arnel Yarn Prices
Bright & Dull

Effective August 11, 1961

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/LTDZ/15	$	$1.25	$ ....
55/2Z/15	1.32	1.33	....
75/LTDZ/20	....	1.21	....
75/2Z/20	1.26	1.27	....
100/2Z/26	1.14	1.15	....
150/2Z/40	.95	.96	....
200/2Z/40	....	....	....
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	....
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—$.02 Additional
Premium for Black Arnel—$.25 Per Pound
Premium for Navy Arnel—$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Lindly Profits Increase

Lindly & Co., Inc. reports a profit increase of 24% for the first six months of this year as compared with the same period last year. Sales of electronic process and quality control equipment were in excess of $300,000 for the first half of 1961 and totaled $460,000 for the first nine months. If projected to the year's end this will result in another sales record for the company. Howard C. Lindemann, president, said they have a larger than usual backlog of orders on hand.

Foster Machine Co. is exclusive selling agent for Lindly in the United States. Virtually all of the leading manufacturers and processors of manmade yarns and fabrics in the United States, Europe and Canada use Lindly products.

Saco-Lowell Installations

Saco-Lowell Shops reports it has concluded contracts to supply the following firms with S-L equipment and machinery:

To Russell Mfg. Co.: 16 MagneDraft spinning frames, involving 4,608 spindles; one 96-spindle Rovematic roving frame, and a one-process picker.

To A. M. Smyre Mfg. Co.: 80 MagneDrafts, involving 19,200 spindles.

To B. F. Goodrich Co.: for its Martha Mills division 9 FS-2 changeovers.

To Greenwood Mills: for the Mathews Mill—40 MagneDrafts to replace the present spinning systems on 9,600 spindles; for the Greenwood Plant—33 spinning frames for conversion to the Duo-Roth systems, with the installation of changeovers on 9,900 spindles; for the Ninety Six Plant—installation of 33 high production S-L comber changeover parts.

To Washington Mills Co.: installation of a S-L/Fleissner dryer.

New Catalog

A new catalog describing processing chemicals of Jacques Wolfe & Co., a subsidiary of Nopco Chemical Co., has been published. The 16-page, two-color catalog furnishes a brief description of each chemical and describes their principal applications. *For free copies write the editors.*

TMW Personnel Changes

Textile Machine Works has announced the following personnel changes and promotions: Vincent Scalese, as production manager of Textile's machine shop operations; Richard C. Bodey as manufacturing engineering manager; John W. Warren, as operations manager-foundry, and Richard L. Hornberger, as assistant manager to Mr. Bodey.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective February 6, 1961

Industrial Yarn Prices

Prices Subject To Change Without Notice

	Denier/ Filament	Twist	Standard Quality Beams		Cones
TYREX (ENKA—5000)	1100/720	Z	.57		.595
	1650/1100	Z	.51		.535
	2200/1440	Z	.48		50.5
	3300/2160	Z	.48		50.5
TYREX FABRIC (ENKA—5000)	1100/720	Z		.69	
	1650/1100	Z		.60	
	2200/1440	Z		.57	
	3300/2160	Z		.57	
SUPRENKA M UNSLASHED Super High Tenacity Yarn	1230/720	Z	.57		.595
	1600/1100	Z	.53		.555
	1800/1100	Z	.51		.535
	1870/1100	Z	.51		.535
	2200/1440	Z	.48		50.5
	2400/1440	Z	.48		50.5
	3650/2160	Z	.48		50.5
SUPRENKA MS SLASHED Super High Tenacity Yarn	1100/720	Z	.57		.595
	1650/1100	Z	.51		.535
	2200/1440	Z	.48		50.5
	2200/1440	(5.5Z)	.505		.53
	3300/2160	Z	.48		50.3
SUPRENKA 2000 High Tenacity Yarn	1100/480		.56		.585
	1230/480		.56		.585
	1650/720	O-Z	.50		.525
	1820/720		.50		.525
	2200/960	O-Z	.47		49.5
	2400/960		.47		49.5
	3300/2160		.47		49.5
CHAFER YARN	1130/480	(5Z)	.60		.60
SEWING YARN	1230/480	Z			.65
	1750/720	Z			.55
	1820/720	Z			.54
SUPRENKA H MOD. SUPER HIGH TENACITY—DIMENSIONALLY STAPLE YARN	1100/1100	Z	.67		.67
	1650/1644	Z	.61		.61
	2200/2160	Z	.58		.58

American Viscose Corp.

Effective February 9, 1961

Tyrex*

Tyrex* Rayon Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	980	O	.57	.595
1100	980	Z	.57	....
1650	1500	O	.51	.535
1650	1500	Z	.51	....
2200	1500	O	.48	.505
3300	3000	O	.48	.505

Tyrex* Rayon Tire Fabric

Denier	Filament	Carcass	Top Ply	Breaker
1100	980/2	.69	.69	.69
		Factor Open-525	300-490	115-272
1650	1500/2	.60	.61	.635

Factor—determined by dividing total ends by picks.

* Tyrex—Trademark of Tyrex Inc.

Rayon Tire Yarn

Yarn

High Strength

Denier	Filament	Twist	Unslashed Beams	Unslashed Cones	Slashed Beams	Slashed Cones
1100	490	O	....	....	.56	.585
1150	490	Z	.56	.585	....	....
1650	980	Z	.50	.525	....	....
1650	980	O	....	....	.50	.525
1875	980	Z	.50	.525	....	....
2200	980	O	....	....	.47	.495

Super "Rayflex"

Type 120						
1800	1500	O	....	.535	....	....
4400	3000	O	....	....	.48	.505

Chafer Yarn

1100/490 High Strength 5Z Twist	.60	.60

Adhesive Dipped Yarn or Cord

.06 PREMIUM

Cord on cones in regular Tire Yarn twists same as fabric prices.
Other twist combinations—prices quoted on request.
Special packages take premiums indicated:

4.0 oz. Wardwell Tubes	.20
10.5 oz. Wardwell Tubes	.10
1.5 lb. Regular Braider Tubes	.06
3.5 lb. Tubes	.045

Single Yarn—Based on cone price.
Plied Yarn—Based on fabric price.
All yarns sold "Not guaranteed for dyeing"
The following deposit charges are made on invoices:

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition freight collect.

Rayon Tire Yarn and Fabric

Terms: Net 30 days. Seller to select and to pay transportation charges of common and contract carrier except when shipment moves West of the Mississippi River, in which event the actual cost of transportation to the Mississippi River crossing based on the lowest published freight rate, shall be allowed. Title to pass when merchandise is delivered to consignee. Transportation allowance based on lowest published volume rate shall be granted if merchandise is transported from shipping point in vehicle owned or leased and operated by buyer and title to pass when merchandise is delivered to same.

Price subject to change without notice.

Inferior Yarns—Designated HS-SR	.06 Below First Quality Price
Skein Yarn	.04 Above First Quality Price
Adding 6 Turns to "O" Twist Yarn	.05

"Avisco" Industrial Sewing Thread

Effective March 1, 1961

Denier	Filament	Description	Twist	Package	Price
1100	980	Super "Rayflex" 120	O	9 lb. cone	.64
1100	980	Super "Rayflex" 120	2Z	4 lb. cone	.64
1500	980	Super "Rayflex" 120	O	9 lb. cone	.59
1500	980	Super "Rayflex" 120	2Z	4 lb. cone	.59
1780	1500	Super "Rayflex" 120	O	9 lb. cone	.55
1780	1500	Super "Rayflex" 120	2Z	4 lb. cone	.55

Domestic freight prepaid.
Prices subject to change without notice.

Celanese Fibers Company

Effective December 27, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A
Prices subject to change without notice.
All previous prices withdrawn.
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices Effective May 11, 1961

"Super Cordura"*

Den Fil	Turns/In	Beams	Cones
1100-720	2	.57	.595
1200-720	2		.595
1600-960	2		.555
1650-1100	2	.51	.535
1800-1100	2	.51	.535
2200-1440	2	.48	.505
2400-1440	2	.48	.505

Terms: Net 30 Days.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.
* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Co.,—Div. of Midland-Ross

Effective June 15, 1961

Tyron

High Tenacity Yarns and Cords for Industrial Products

Denier	Filament	Turns per Inch	Cones	Beams
1100	720	3.0 "Z"	.585	.56
1150	720	3.0 "Z"	.585	.56
1650	1100	3.0 "Z"	.525	.50
1700	1100	3.0 "Z"	.525	.50
2200	1440	3.0 "Z"	.495	.47
3300	2200	3.0 "Z"	.495	.47

Treated yarns and cords for mechanical rubber goods—plus $.06.
Prices for special put-ups quoted on request.
Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in the continental United States except Alaska.

Tyrex*

Tyrex* Rayon Tire Yarn

Denier	Filament	Twist	Cones	Beams
1100	720	Z	.595	.57
1650	1100	Z	.535	.51
2200	1440	Z	.505	.48
3300	2200	Z	.505	.48

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.
* Tyrex—Trademark of Tyrex Inc.

North American Rayon Corporation

Current Prices

Super Super High Strength Continuous Yarn Type 710		Cones	Beams
1100/720	1.6Z	.57	.57
1650/720/1100	2.0Z	.51	.51
Tire Cord Fabrics			
Super Super High Strength Type 710			Rolls
1100/720			.69
1650/720			.60

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.
Prices are subject to change without notice.

Acrylic Fiber Prices Cut

Price reductions on a number of types of acrylic fiber have been made. Du Pont has made an average cut of 7 cents on a pound on "Orlon" acrylic fiber. For example Type 42 2 and 3 denier have been reduced to $1.18 per pound and Type 36 carpet staple is down to 79 cents a pound.

American Cyanamid Co. has reduced prices on its 2, 3 and 5 denier acrylic staple fiber to $1.18 a pound. Type BC acrylic fiber for blending with cellulosic fibers has been cut to 96 cents a pound, while Type BB, a blanket blend, is now down to 94 cents a pound.

Rayon Staple Prices Up

American Viscose Corp. has increased prices of its regular and crimped rayon staple types 1 cent a pound. The new price of 27 cents a pound applies to both bright and dull lusters. Prices for special types XL and Fiber 40 remained unchanged.

Spectroscopy Booklet

The Scientific and Process Instruments Division of Beckman Instruments, Inc., has prepared a new pocket-size booklet on ultraviolet, visible, and near-infrared spectroscopy. The 36-page bibliography contains more than 250 references under headings of General, Technique and Application. *For copies of the booklet write the editors.*

New Avicel Facilities

American Viscose Corp. will build facilities to produce Avicel, the company's new microcrystalline cellulose food ingredient, on a commercial scale. Avisco now has a semi-commercial plant in operation with an annual capacity of about one million pounds.

Textile Banking Changes

Edward P. Addison, executive vice president of T.B.C. Associates, the retail factoring subsidiary of Textile Banking Co., has been made a vice president of the parent company. Other T.B.C. promotions are: Walter Allen, James A. Amato and John M. Keefe, named as assistant vice presidents, and I. Joseph Cataldo, as controller.

Textured Carpet Cleaning

"How To Keep Your New Textured Caprolan Carpet Blooming" is the title of a new booklet put out by the Fiber Marketing Department of Allied Chemical Corp. The four-page booklet is filled with tips on how to keep Caprolan nylon carpets well groomed, as well as how to remove specifically-caused spots when they occur. *For free copies of the booklet write the editors.*

CELLULOSIC STAPLE & TOW

ACETATE

Celanese Fibers Company Effective March 2, 1959

Staple

(Most Deniers Available in Bright or Dull Luster)

Celanese Acetate Staple	
3, 5.5 & 8 Denier (Regular Crimp, Type HC, Type D)	$.36
2, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	.37
35 Denier	.38
50 Denier	.40
Type F—5.5 & 8 Denier	.35
Type F—12 & 17 Denier	.36
Type K—(Available under Celanese License Agreement)	.39
⅝" to ⅞" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.29*

Tow (Celatow)

3, 5.5 & 8 Denier	$.37
2, 12 & 17 Denier	.38
35 Denier	.40
35 Denier Flat Filament Acetate Tow	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point.)

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

RAYON

American Viscose Corp. Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .28
"Viscose 22"	.28
1.25 Denier	.31
All Other Deniers	.28
Hi-Crimp	.28
Bleached Crimp	
1.5, 3.0 Denier	.315
Smooth	
8.0 & 15.0 Denier Smooth	.30
22.0 Denier	.32
Bleached	.33
Extra Strength	
0.75 Denier	.40
1.0 Denier	.35
XL	
1.0 Denier	.40
1.5, 3.0 Denier	.37
XLI	.34
Fiber 40	
1.0 Denier	.43
1.5 Denier	.40

Spun Dyed Black Staple

1.5, 3.0, 5.5 Denier	.35
15.0 Denier crimped	.38

Prices of other colors on request.

Tow

1.5, 3.0, 5.5 Denier	.35
9.0 Denier	.37
15.0, 20.0 Denier	.38
Color spun black tow	.42

Terms: Net 30 days.

American Enka Corp.

Current Prices Effective April 1, 1960

Rayon Staple

Regular Crimp

	Brt.	Dull
1.5 and 3 denier	$ .28	$ .28

High Crimp

3.0 denier	.28	.28
4.5 denier	.28	
6.5 denier	.28	.28
8 denier	.28	
15 denier	.28	.28

Celanese Fibers Company

Effective May 1, 1959

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F. Total denier 200,000	.35
8 D.P.F. Total denier 207,000	.37

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

Rayon Staple

	Bright	Dull
Regular Rayon Staple Fiber	$.27	$.27

Crimped Rayon Staple

High Crimped Rayon Staple Fiber	$.27	$.27

Coloray® Solution Dyed Rayon Staple

Color	Price per lb.
Black	$.35
Oyster	$.36
Silver Grey	$.41
Mocha	$.41
Tan	$.41
Medium Brown	$.41
Pumpkin	$.41
Aqua	$.42
Rose	$.42
Dawn Pink	$.42
Ecru	$.42
Dark Brown	$.42
Gold	$.45
Lilac	$.45
Slate Grey	$.45
Sulphur	$.46
Nugget	$.46
Light Blue	$.46
Crystal Blue	$.47
Apple Green	$.47
Sage	$.47
Peacock Blue	$.48
Medium Blue	$.50
Indian Yellow	$.51
Dark Blue	$.51
Hunter Green	$.51
Turquoise	$.52
Malachite Green	$.53
Red	$.58

In addition to the above, Black is also available in:

1½ den. 1⅛"	5½ den. 3"
3 den. 1⅛"	5½ den. 6"
3 den. 1-9/16"	

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

Corval® Cross Linked Rayon

Man-made, cross-linked, regular or crimped cellulosic staple, semi-dull and dull ..... $.37 per lb.

Topel® Cross-Linked Rayon

Man-made, cross-linked, cellulosic staple, semi-dull and dull ..... $.37 per lb

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Fibres Co.

Div. Bigelow-Sanford, Inc.

Rayon Staple

Effective September 22, 1961

Regular

1.5 & 3.0 denier Bright & Dull, 1-9/16", 2" .27

White (Crimped)

8 denier 3" Bright	.27
15 denier 3" Bright	.27
15 denier 3" Dull	.27

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	.38	.38	
Sandalwood	.38	.38	
Nutria	.38	.38	
Sea Green	.38	.38	
Mint Green	.38	.38	
Champagne	.38	.38	
Midnight Black	.38		.38
Gold	.38	.38	
Turquoise	.38	.38	
Melon	.38	.38	
Capri Blue	.38	.38	
Charcoal Grey	.38	.38	
Coco	.38	.38	
Sable	.38		.38
Tangerine	.59		.59
Chinese Red	.59		.59
Larkspur Blue	.38	.38	
Royal Blue	.59		.59
Lemon Peel	.48	.48	
Kelly Green	.45	.45	
Bitter Green	.59		.59
Brazil		.38	
Redwood			.38
Frost Green		.38	
Mist Grey		.38	
Medium Brown		.38	
Dark Brown			.38
Woodtone		.38	
Antique Gold		.38	
Light Turquoise		.38	
Hunter Green		.38	

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

"Zantrel Polynosic" Rayon

Effective August 14, 1959

Man-made, cellulosic staple.

Semi-Bright, 1 denier, 1 916/"	$.45 per lb.
1½ denier, 1¼" and 1 9/16"	.42 per lb.
3 denier, 1 9/16" and 2"	.42 per lb.

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	
1, 1.5 & 2.3 deniers	.40
No. 2 (Preshrunk)	
1, 1.5 & 3 deniers	.40

Rayon Tow

Tow Yarns for Tow Breaking	Bright No Twist Tow Tubes
4400/2934	$.45
6000/2934	.45
Tow Yarns for Ribbon	**Bright No Twist Tubes**
1100/480/960	.60
1650/720/1100	.56
1800/720/960	.54
2000/1466	.52
2200/960	.52
3000/960/1466/2934	.47½
3300/1466/2934	.47½
4400/2000/2934	.47½
6000/2934	.47½
6600/2000/2934	.47½

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

TRIACETATE

Celanese Fibers Company

Current Prices Effective June 7, 1957

(Most Deniers Available in Bright or Dull Luster)

*Arnel Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier 114,000 Total Denier	$.60
5.0 Individual Denier 90,000 Total Denier or 180,000 Total Denier	.60

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

* Registered Trademark of Celanese Corp. of America.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®

Current Yarn Prices: Effective May 1, 1960

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
140	16	1½	Z	B	Cones*	$1.60
140	16	1½	Z	B	Beams	1.65
200	16	1½	Z	B	Cones*	1.49
200	16	1½	Z	B	Beams	1.54
200	32	¾	Z	B	Bobbins	1.49
200	32	¾	Z	B	Beams	1.54
210	32	1	Z	HB	Bobbins	1.49
260	16	1	Z	HB	Bobbins	1.49
420	64	½	Z	HBT	Bobbins	1.39
420	64	½	Z	HBT	Beams	1.44
520	32	1	Z	B	Bobbins	1.39
520	32	1	Z	B	Beams	1.44
840	136	½	Z	HBT	Al. Tubes	0.94
840	136	½	Z	HBT	Beams	0.92
1680	272	½	Z	HBT	Al. Tubes	0.94
1680	272	½	Z	HBT	Beams	0.92
1050	56	½	Z	B	Al. Tubes	1.15
2100	112	½	Z	B	Al. Tubes	1.11
4200	224	0	O	B	Paper Tubes*	1.10
2100	408	0	O	HB	Paper Tubes*	0.97
2500	408	0	O	HB	Paper Tubes*	0.97
3360	544	0	O	HB	Paper Tubes*	0.96
4200	680	0	O	HB	Paper Tubes*	0.96
5000	816	0	O	HB	Paper Tubes*	0.96
5800	952	0	O	HB	Paper Tubes*	0.96
7500	1224	0	O	HB	Paper Tubes*	0.95
10000	1632	0	O	HB	Paper Tubes*	0.95
15000	2448	0	O	HB	Paper Tubes*	0.95

Terms—Net 30 days.

Price subject to change without notice.

Bobbins are invoiced at 45¢ ea.

Aluminum Tubes are invoiced at 40¢ ea.

Beams are invoiced at $220.00.

Cradles for beams are invoiced at $53.00.

B—Bright

H—High Tenacity

T—Heat Stabilized

* Paper Tubes and Cones non-returnable, no charge.

** Type is used to describe luster and tenacity.

All prices quoted F.O.B. Shipping Point.

Minimum transportation charges allowed and prepaid in Continental United States, excluding Alaska.

American Enka Corporation

Enka Nylon Prices

Effective March 21, 1961

Denier/Mono Filament	Luster	Twist	Package	Price Per Pound Standard	Price Per Pound Substandard
15/1	SD or D	0.5Z	Pirns	3.89	3.69
15/1	SD or D	0.5Z	Spools	4.00	....
20/1	SD	0.5Z	Pirns	3.53	3.30
20/6	SD	0.5Z	Pirns	2.91	2.61
20/6	SD	0.5Z	Spools	3.02	....
20/6	Dull	0.5Z	Pirns	2.96	2.61
20/6	Dull	0.5Z	Spools	3.07	....
30/1	SD	0.5Z	Pirns	4.13	3.93
30/3 Enkalure**	SD	0.5Z	Pirns	2.46	2.31
30/6	SD	0.5Z	Pirns	2.36	2.21
30/6	SD	0.5Z	Spools	2.46	....
40/8-13	SD	0.5Z	Pirns	2.01	1.91
40/8-13	SD	0.5Z	Spools	2.11	....
40/8	SD-B de B*	0.5Z	Pirns	2.10	2.00
40/13	Dull	0.5Z	Pirns	2.06	1.96
40/13	Dull	0.5Z	Spools	2.16	....
50/13	SD	0.5Z	Pirns	1.91	1.76
50/13	SD	0.5Z	Spools	2.01	....
50/13	SD-B de B*	0.5Z	Pirns	2.00	1.85
50/13	SD-B de B*	0.5Z	Spools	2.10	....
70/16-32	B or SD	0.5Z	Pirns	1.71	1.66
70/32	SD-B de B*	0.5Z	Pirns	1.80	1.75
100/32	SD	0.5Z	Pirns	1.65	1.60
100/32	SD-B de B*	0.5Z	Pirns	1.74	1.69
100/48	SD	0.5Z	Pirns	1.65	1.60
140/24	SB	1.5Z	Cones	1.60	1.55
140/24	SB	1.5Z	Beams	1.65	....
140/17 Enkalure**	Bright	1.5Z	Cones	1.65	1.60
140/24	Bright	1.5Z	Cones	1.60	1.55
140/24	Bright	1.5Z	Beams	1.65	....
140/32-64	SD	0.5Z	Pirns	1.60	1.55
140/32-64	SD-B de B*	0.5Z	Pirns	1.69	1.64
200/16	Bright	1.5Z	Cones	1.49	1.44
200/16	Bright	1.5Z	Beams	1.54	....
200/16-32	Bright	1.5Z	Cones	1.49	1.44
200/16-32	Bright	1.5Z	Beams	1.54	....
200/17 Enkalure**	Bright	1.5Z	Cones	1.54	1.49
200/32	SD-B de B*	0.5Z	Cones	1.58	1.53
210/32	BHT	0.5Z	Cones	1.49	1.44
210/32	BHT	0.5Z	Beams	1.54	....
260/16	BHT	1.0Z	Cones	1.49	1.39
260/16	BHT	1.0Z	Beams	1.54	....
260/17 Enkalure**	Bright	1.5Z	Cones	1.54	1.49
400/64	Bright	1.0Z	Cones	1.39	1.29
420/64	BHT	1.0Z	Cones	1.39	1.29
420/64	BHT	1.0Z	Beams	1.44	....
520/32	Bright	0.5Z	Cones	1.39	1.29
520/32	BHT	0.5Z	Cones	1.39	1.29
520/32	BHT	0.5Z	Beams	1.44	....
520/34 Enkalure**	Bright	0.5Z	Cones	1.44	1.39
1040/68 Enkatron**	SB	0.5Z	Cones	1.30	1.20
1230/68 Enkatron**	SB	0.5Z	Cones	1.30	1.20
840/140	BHT	0.5Z	Cones	.94	.92
840/140	BHT	0.5Z	Beams	.92	....
1040/68 Enkalure**	Bright	0.5Z	Cones	1.30	1.20

* Blanc de Blancs = Enka Trademark White of Whites.

** Enka Trademark.

*Luster: B—Bright; H—High Tenacity: T—Heat Stabilized; SD—Semi-Dull; D—Dull; SB—Semi-Bright; *SD-B de B.

Pirns invoiced at 25¢ or 45¢ each, depending on type. Deposits refunded upon return of pirns in good condition. Cones are not returnable. Spools, Beams and Racks are deposit carriers and remain the property of American Enka Corporation.

Terms: Net 30 days from date of invoice. Minimum common carrier transportation charges will be prepaid and absorbed to first destination in the continental limits of the United States excluding Alaska and Hawaii. In prepaying transportation charges, seller reserves the right to select carrier used.

All prices subject to change without notice.

*B de B—Blanc de Blancs®—White of Whites Color.

The Chemstrand Corp.

Current Prices Effective January 1, 1960

Denier	Filament	Twist	Type	Package	Standard Price/lb.	Second Price/lb.
10	1	O	SD	Bobbins	$7.16	$6.56
* 15	1	O	RSD	Bobbins	3.89	3.69
15	1	O	RSD	Spools	4.00	
15	1	O	Dull	Bobbins	3.89	3.69
15	1	O	Dull	Spools	4.00	
20	7	Z	RSD	Bobbins	2.91	2.61
20	7	Z	RSD	Spools	3.02	
* 30	10	Z	RSD	Bobbins	2.36	2.21
* 30	26	Z	RSD	Bobbins	2.49	2.21
* 40	10	Z	RSD	Bobbins	2.01	1.91
* 40	13	Z	RSD	Bobbins	2.01	1.91
40	13	Z	RSD	Spools	2.11	....
40	13	O	RSD	Draw Wind	2.01	1.91
* 40	13	Z	Dull	Bobbins	2.06	1.96
40	13	Z	Dull	Spools	2.16	
40	13	O	Dull	Draw Wind	2.06	1.96
* 50	17	Z	RSD	Bobbins	1.91	1.76
50	17	O	RSD	Draw Wind	1.91	1.76
* 50	17	Z	Brt.	Bobbins	1.91	1.76
70	17		RSD	Bobbins	1.71	1.66
* 70	20	Z	RSD	Bobbins	1.71	1.66
* 70	34	Z	RSD & SD	Bobbins	1.71	1.66
70	34	O	RSD & SD	Draw Wind	1.71	1.66
70	34	Z	Brt.	Bobbins	1.71	1.66
70	34	O	Brt.	Draw Wind	1.71	1.66
70	34	Z	HB	Bobbins	1.76	1.66
70	34	O	HB	Bobbins	1.76	1.66
70	34	Z	RB	Bobbins	1.71	1.66
100	26	Z	RSD	Bobbins	1.65	1.60
100	34	Z	RSD	Bobbins	1.65	1.60
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	Brt.	Bobbins	1.60	1.55

* 200	34	Z	Brt.	Bobbins	1.49	1.44
200	34	O	Brt.	Draw Wind	1.49	1.44
200	34	Z	Brt.	Spools	1.54	....
* 200	68	Z	RSD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.49	1.44
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Beams	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
420	68	Z	RHB	Bobbins	1.39	1.29
520	34	Z	HB	Bobbins	1.39	1.29
720	140	Z	RHB	Beams	.99	....
840	140	Z	HB	Tubes	.94	.92
840	140	Z	HB	Beams	.92	.90
840	140	Z	HB	Cones	.95	.93
840	140	Z	RHB	Tubes	.94	.92
840	140	Z	RHB	Beams	.92	.90
840	140	Z	RHB	Cones	.95	.93
840	140	Z	HB	Paper Tubes	.94	.92
840	140	Z	RHB	Paper Tubes	.94	.92
840	140	Z	RHB	Textile Grade—W.W.	1.06	.92
840	140	Z	HB & RHB	Raschel Spools	1.00	....
1050	170	Z	RHB	Tubes	.94	.92
1680	280	Z	RHB	Tubes	.94	.90
1680	280	Z	RHB	Beams	.92	....
1680	280	Z	RHB	Cones	.95	.91
1680				Spools	.99	.91

Cumuloft®

520	34	Z	RB	Tubes	2.05	....
1040	68	Z	RB	Tubes	1.74	....
1230	68	Z	RSD	Paper Tubes	1.53	....
2080	136	Z	RB	Tubes	1.66	....
3690	204	S	RSD	Cones	1.47	....

Cadon™

15	1	O	Brt.	Bobbins	4.90	4.70
15	1	O	Brt.	Spools	5.01	....
70	34	Z	RSD	Bobbins	1.81	....
200	34	Z	RB	Bobbins	1.54	....
520	34	Z	RB	Bobbins	1.44	1.34
1040	68	Z	RB & RSD	Tubes	1.30	1.20
1230	68	Z	RSD	Tubes	1.30	1.20
2080	136	Z	RB	Tubes	1.26	....

* These counts also available in Warp Wind package at price shown for Bobbins.

* *Types*: D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $95.00, $110.00, and $115.00, depending on type; and beams and crates for beams are invoiced at $220.00 and $25.00 respectively.

Prices subject to changes without notice.

Freight prepaid within Continental United States and Puerto Rico

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	First Grade	Second Grade
7-1	0	200	Bobbin	$8.05	$7.40
10-1	0	200	Bobbin	7.16	6.56
12-1	0	200	Bobbin	6.35	5.85
15-1	0	90	Bobbin	4.90	....
15-1	0	90	Knitg. Beam	5.01	....
15-1	0	200	Knitg. Beam	4.00	....
15-1	0	200/280	Bobbin	3.80	3.69
15-1	0	680	Knitg. Beam	4.00	....
15-1	0	680	Bobbin	3.89	3.69
20-1	0	200/280	Bobbin	4.03	3.68
30-1	0	200	Bobbin	4.13	....
40-1	0	100	Bobbin	4.03	3.75
14-2	0.2Z	200	Bobbin	6.72	6.12
17-2	0.2Z	200	Bobbin	5.96	5.41
20-2	0.2Z	200	Bobbin	4.71	4.27
15-3	0.2Z	200	Bobbin	5.19	4.69
21-3	0.2Z	200	Bobbin	4.70	4.27
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Knitg. Beam	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Knitg. Beam	3.07	....
20-17	0.5Z	280	Bobbin	3.51	....
20-17	0.5Z	280	Knitg. Beam	3.62	....
20-20	0.7Z	209	Bobbin	6.00	....
28-4	0.2Z	200	Bobbin	2.81	2.61
30-10	0	200	Drawwinder Tube	2.36	2.21
30-10	0.5Z	200/280	Bobbin	2.36	2.21
30-10	0.5Z	200/280	Knitg. Beam	2.46	....
30-10	0.5Z	300	Bobbin	2.51	2.36
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Knitg. Beam	2.51	....
30-26	0.5Z	200/280	Bobbin	2.49	2.21
30-26	0.5Z	200/280	Knitg. Beam	2.59	....
40-7	0.5Z	200	Bobbin	2.11	1.91
40-10	0.5Z	200/280	Bobbin	2.01	1.91
40-10	0.5Z	200/280	Knitg. Beam	2.11	....
40-13	0.5Z	200/280	Knitg. Beam	2.11	....
40-13	0.5Z	100/200/280	Bobbin	2.01	1.91
40-13	0	200	Drawwinder Tube	2.01	1.91
40-13	0.5Z	300/400/480	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Knitg. Beam	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200/280	Bobbin	2.11	1.76
50-17	0.5Z	100/200/280	Bobbin	1.91	1.76
50-17	0	200	Drawwinder Tube	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
50-17	0	685	Paper Tube	2.01	1.76
60-20	0.5Z	200/280/288	Bobbin	1.82	1.65
60-34	0.5Z	300	Bobbin	1.86	1.76
70-17	0.5Z	200/288	Bobbin	1.71	1.66
70-20	0.5Z	288	Bobbin	1.71	1.66
70-34	0.5Z	91	Bobbin	1.80	1.75
70-34	0.5Z	100/180/200	Bobbin	1.71	1.66
70-34	0	105/205	Paper Tube	1.71	1.66
70-34	0	100/200/285	Drawwinder Tube	1.71	1.66
70-34	0.5Z	280/288	Bobbin	1.71	1.66
70-34	0.5Z	300/680	Bobbin	1.76	1.66
70-34	0	680/685	Paper Tube	1.76	1.66
80-26	0.5Z	200	Bobbin	1.71	1.60
90-26	0.5Z	200/288	Bobbin	1.76	1.66
100-34	0.5Z	200/288	Bobbin	1.65	1.60
100-34	0	300	Drawwinder Tube	1.70	1.60
100-34	0.5Z	300/680	Bobbin	1.70	1.60
100-50	0.5Z	200/288	Bobbin	1.71	1.60
110-50	0.5Z	200	Bobbin	1.71	1.60
140-34	0.5Z	680	Bobbin	1.65	1.60
140-68	0.5Z	91	Bobbin	1.69	1.64
140-68	0.5Z	100/180/280	Bobbin	1.60	1.55
140-68	0	200	Drawwinder Tube	1.60	1.55
140-68	0.5Z	200/288	Bobbin	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
140-68	0.5Z	680	Bobbin	1.65	1.60
200-20	0.7Z	100/180	Bobbin	1.49	1.44
200-34	0	100	Drawwinder Tube	1.49	1.44
200-34	0.7Z	100/280	Bobbin	1.49	1.44
200-34	0	105	Paper Tube	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	100/200	Bobbin	1.56	1.46
210-34	0	300	Drawwinder Tube	1.49	1.44
210-34	0.7Z	300/330	Bobbin	1.49	1.44
210-34	0.7Z	300/330	Kntg/Section Beam	1.54	....
210-34	0	305	Paper Tube	1.49	1.44
260-17	1Z	300/380	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
420-68	1Z	300	Kntg/Section Beam	1.44	....
520-34	1Z	300/380	Bobbin	1.39	1.29
630-102	0.7Z	300	Bobbin	1.39	1.29
780-51	1Z	300/380	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-136	1Z	300	Bobbin	1.34	1.24
840-136	1Z	300	Kntg/Section Beam	1.39	....

Nylon Filament "Antron" Yarn Prices

20-7	0.5Z	560 Brt.	Bobbin	3.06	2.76
20-7	0.5Z	560 S.D.	Bobbin	3.06	2.76
30-10	0.5Z	560 S.D.	Bobbin	2.46	2.31
40-13	0.5Z	560 Dull	Bobbin	2.16	2.06
40-13	0.5Z	560 Mid-Dull	Bobbin	2.11	2.01
40-13	0.5Z	560 S.D.	Bobbin	2.11	2.01
40-13	0.5Z	560 Brt.	Bobbin	2.11	2.01
50-17	0.5Z	560 S.D.	Bobbin	2.01	1.86
70-34	0	565 Brt.	Paper Tube	1.81	1.76
70-34	0.5Z	560 Brt.	Bobbin	1.81	1.76
70-34	0	565 S.D.	Paper Tube	1.81	1.76
70-34	0.5Z	560 S.D.	Bobbin	1.81	1.76
70-34	0	560 S.D.	Drawwinder Tube	1.81	1.76
200-20	0.7Z	560 Brt.	Bobbin	1.54	1.49
200-34	0.7Z	560 S.D.	Bobbin	1.54	1.49
200-34	0	565 S.D.	Paper Tube	1.54	1.49
520-34	1Z	560 Brt.	Bobbin	1.44	1.34
780-51	1Z	560 Brt.	Bobbin	1.44	1.34

* Antron is DuPont's registered trademark for its trilobal multi-filament nylon yarn.

Color-Sealed Black Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.18
70-17	0.5Z	140/148	Bobbin	2.06	2.01
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
200-20	0.7Z	140	Bobbin	1.84	1.79
200-34	0.7Z	140	Bobbin	1.84	1.79
260-20	1Z	140	Bobbin	1.84	1.79

INDUSTRIAL YARNS

Tire Quality

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
840-140	0.5Z	300/700	Aluminum Tube	$.94	$.92
840-140	0.5Z	300/700	Beam	.92	....
840-140	0.5Z	300/700	Kntg Beam	1.00	....
1050-168	0.5Z	700	Beam	.92	....
1050-168	0.5Z	700	Alum. Tube	.94	.92
1680-280	0.5Z	700	Cone, Paper Tube	.95	.92
1260-210	0.5Z	700	Beam	.92	....
1680-280	0.5Z	700	Aluminum Tube	.94	.92
1680-280	0.5Z	700	Beam	.92	....
840-140	0.5Z	300/700	Cone, Paper Tube	.95	.92

Industrial Quality

840-140	0.5Z	707	Cone, Pape Tube	.95
2520-420	0	700	Paper Tube	.97
3360-560	0	700	Paper Tube	.96
5040-840	0	707	Paper Tube	.99
5040-840	0	700	Paper Tube	.96
7560-1260	0	707	Paper Tube	.98
7560-1260	0	700	Paper Tube	.95
10080-1680	0	707	Paper Tube	.98
15120-2520	0	707	Paper Tube	.98

These prices are subject to change without notice. Terms: Net 30 Days

Types

Type 90—Bright, normal tenacity, trilobal—cross section.
Type 91—Semidull, super white, normal tenacity, for intimate apparel use only.
Type 100—Bright, normal tenacity.
Type 105—Bright, normal tenacity, low shrinkage (5-7%).
Type 140—Bright, color-sealed, black, normal tenacity.
Type 148—Bright, color-sealed Black, normal tenacity, for texturing.
Tyep 200—Semidull, normal tenacity.
Type 205—Semidull, normal tenacity, low shrinkage (5-7%).
Type 209—Semidull, normal tenacity, improved light durability and dye light fastness. For electrical uses.
Type 280—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 285—Semidull, normal tenacity, low shrinkage, imrpoved light durability, and dye light fastness.
Type 288—Semidull, normal tenacity, for texturing.
Type 300—Bright, high tenacity.
Tyep 305—Bright, high tenacity, low shrinkage (5-7%).

Type 330—Bright, high tenacity, more heat & light resistant.
Type 380—Bright, high tenacity, improved light durability and dye light fastness.
Type 400—Semidull, high tenacity.
Type 480—Semidull, high tenacity, improved light durability and dye light fastness.
Type 560—Luster as designated—Modified cross section. Improved light durability and dye light fastness.
Type 565—Luster as designated—Modified cross section, low shrinkage. Improved light durability and dye light fastness.
Type 680—Dull, normal tenacity.
Type 685—Dull, normal tenacity, low shrinkage (5-7%).
Type 700—Bright, high tenacity.
Type 707—Bright, high tenacity cordage yarn.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Following are invoiced as a separate item.
Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—$1.00
Industrial & Section Beams—$220.00 each
Racks for Industrial & Section Beams—$50.00 each
Tricot Beams—$95.00 or $250.00 each depending upon type
Racks for Tricot Beams—$70.00 or $130.00 each depending upon type
Raschel Beams—$85.00 or $100.00 each depending upon type
Racks for Raschel Beams—$70.00 each

Knitting (Tricot and Raschel) and Section Beams and Racks are billed at above prices if not returned within 180 days from date of invoice. Industrial beams and racks are billed if not returned within 60 days from date of invoice.

(Beams and Racks are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices "Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Package	Tubes 1st Gr.
30-14	0	Bright	55	Tube	$2.60
30-20	0	Semidull	56	Tube	2.60
40-27	0	Semidull	56	Tube	2.35
40-27	0	Bright	55	Tube	2.35
40-27	0	Dull	57	Tube	2.40
70-34	0	Semidull	56	Tube	1.97
70-14	0	Bright	55	Tube	1.97
70-34	0	Bright	55	Tube	1.97
70-34	0	Dull	57	Tube	2.02
100-34	0	Semidull	56	Tube	1.90
140-28	0	Bright	55	Tube	1.85
150-34	0	Semidull	56	Tube	1.85
220-50	0	Bright	51	Tube	1.76
250-50	0	Bright	55	Tube	1.76
1100-250	0	Bright	51	Core	1.50
1100-250	0	Bright	52	Core	1.50
1100-250	Ro2	Bright	52	Core	1.50
1100-250	Ro2	Bright	52	Beam	1.50

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the Continental limits of the U. S., excluding Alaska.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 52—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.

Tubes are invoiced as a separate item at $.70 each.

Industrial beams and cradles are billed if not returned within 60 days from date of invoice. They are then billed as separate items at $220.00 per beam and $50.00 per cradle and are returnable for credit.

*"DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN

The National Plastics Products Company—Fibers Division Odenton, Maryland

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.

F.O.B. Odenton, Maryland.

Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW ACRYLIC

American Cyanamid Co. Fibers Division

Effective Date: September 21, 1961

Cyanamid Acrylic Staple

	1st Grade Price (per pound)
2.0 Denier Bright and Semi-Dull	$1.18
3.0 Denier Bright and Semi-Dull	1.18
5.0 Denier Bright and Semi-Dull	1.14
15.0 Denier Bright and Semi-Dull	.745

Staple Lengths: 1½", 2", 2½", 3", 3½", 4", 4½".

Type WM—Designed for the woolen spinning system and is a blend of deniers (average 4) and length ..... .94

Type BC—Designed for blending with cellulosics and is 2 or 3 denier 1½" semi-dull regular staple ..... .96

Information provided on request for Deniers, Lengths and Lusters not listed above.

Prices are subject to change without notice.

Terms: Net 30 Days.

F.O.B. Shipping Point—Minimum transportation allowed (Seller's route and method) within the continental limits of the United States excluding Alaska. If Buyer requests and Seller agrees to a route or method involving higher than minimum rate, Buyer shall pay the excess transportation cost.

Note: CRESLAN® is Cyanamid's registered trademark for certain of its acrylic fibers. Use of this trademark is authorized only on properly constructed fabrics, after they have been tested and approved by Cyanamid.

The Chemstrand Corp.

"Acrilan"*

Current Prices Effective January 1, 1961

Denier	Type	Regular Acrilan "A" Qual.	Regular Acrilan 2nd Qual.	Acrilan 16 "A" Qual.	Acrilan 16 2nd Qual.
1.0	Staple	$	$	$1.28	$ ....
2.0	Staple	1.18	1.03	1.18	1.03
2.0	Tow	1.22	1.03	1.22	1.03
2.5	Hi-Bulk Staple	1.18	1.03	1.18	1.03
2.5	Hi-Bulk Tow	1.22	1.03	1.22	1.03
3.0	Staple	1.18	1.03	1.18	1.03
3.0	Tow	1.22	1.03	1.22	1.03
5.0	Staple	1.18	1.03	1.18	1.03
5.0	Tow	1.22	1.03	1.22	1.03
8.0	Staple	1.18	1.03	1.18	1.03
8.0	Tow	1.18	1.03	1.18	1.03
15.0	Staple	.745	....	.745	....
15.0	Tow	.95	....	.95	....

Staple and Tow available in Bright and Semi-Dull lusters.

Acrilan Spectran™		Dark	Light
2.5	Staple	1.39	1.29
3.0	Staple	1.39	1.29
3.0	Tow	1.44	1.34

Acrilan Spectran—Staple and Tow available in Bright lusters only.
Dark—Black, Dark Blue, Brown, Dark Grey and Olive.
Light—Taupe, Gold, Beige and Light Grey.

Fiberfill	....	....	1.01	....
Types 77, 88 and 89 Staple	....	....	.94	....

TERMS: Net 30 Days.

F.O.B. shipping point, freight prepaid: seller to select and pay transportation charges of carrier to points within the continental limits of the United States, excluding Alaska.

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department Current Prices

"Zefran"* Acrylic Staple

Type 1207	Staple Length	
2.0 Denier	1½", 2", 3"	$1.24
3.0 Denier	1½", 2", 2½", 3", 4½"	1.18

100% Blends of ZEFRAN 1207 Acrylic fiber (For the Woolen System)
Type W-7 (average denier of about 2.5) ..... $.99
Type W-9 (average denier of about 4.5) ..... .94

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route within the continental limits of the U. S., excluding Alaska.

* Registered trademark of The Dow Chemical Co.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Orlon"* Acrylic Staple & Tow

Type 42	Staple Length	Tow Blds.	1st Grade
2.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.18
3.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.18
3.0 Denier Color-sealed Black	1¼, 1½, 2, 2½, 3, 4½	470M	1.43
6.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.14
6.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.39
4.5 Denier Semidull & Bright	1½, 1¼, 2, 2½, 3, 4½	470M	1.14
10.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.14
10.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.39

High Shrinkage Staple price as Regular Staple

Type 44 Staple & Tow
(High-Shrinkage Staple & Tow Prices Same as Regular Staple & Tow)
These products are acid-dyeable and permit piece-dye styling when blended with Type 42.

3.0 Semidull	1½", 3" & 4½"	470M	$1.23
6.0 Semidull	1½", 3" & 4½"	470M	1.19

Type 36 Carpet Staple Semidull—3" & 4" $.79

Type 38 Staple Semidull & Bright $.96
This product is designed for the pile-fabric trade and is a mixture of deniers (average about 3.0), 1¼" staple.

Type 39 Semidull $.94
This product is designed for *woolen system spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A Semidull $.96
This product is designed for *woolen system spinning* and is a blend of predominately fine deniers (average 2.5) with a variable cut length.

Type 39B Semidull $.94
This product is designed for *woolen system spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

Type 72 Semidull $.96
This product is designed as a blending staple with cotton for skin-contact apparel type of fabrics and is a 1.5 denier, 1½" semidull whitened staple.

Type 75 Semidull $.96
This product is designed for *Cotton/Rayon System Spinning* and is 2.5 denier, ½" semidull regular shrinkage staple.

"ORLON SAYELLE"**

Type 21—3 Denier Semidull Tow

3.0 denier semidull variable (2½" to 5" average 3¾") staple		$1.38
6.0 denier semidull variable (2½" to 5" average 3¾") staple		1.34
6.0 denier semidull tow 470M		1.38

Type 24
3.0 denier semidull variable (1" to 5" average 3") staple $1.38

F.O.B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "ORLON" is Dupont's Registered Trade-mark for its Acrylic Fiber.

** "ORLON SAYELLE" is Dupont's Registered Trade-mark for its bi-component Acrylic fiber.

TDI Annual Meeting

(Continued from page 53)

Corp.; Nat Leavy, Goldstein & Leavy, Inc.; Irving Roaman, Reliable Textile Co., Inc.; and Walter Ross, Rosewood Fabrics, Inc.

The following 14 directors will continue in office: Philip Feibusch, M. Lowenstein & Sons, Inc.; Charles Folker, Folker Fabrics Corp.; Sidney Frankel, Duval Fabrics, Inc.; Ira Jacobson, Cohn Hall Marx Co.; Abe Kirschenbaum, Pedigree Fabrics, Inc.; Frank D. Levi, Belding Heminway Corticelli; Eugene Messner, Loomskill, Inc.; Arthur Raphael, Cameo Fabrics, Inc.; Benjamin W. Rosenblum, Benrose Fabrics Corp.; Jack H. Simon, Bloomsburg Fabrics, Inc.; Philip A. Vogelman, Onondaga Silk Co., Inc.; Morris A. Weil, Weil & Schoenfeld Fabrics, Inc.; A. J. Wullschleger, Wullschleger & Co., Inc.; and Arnold Zavell, Couture Fabrics Ltd.

The following officers were elected last year for a term of two years and continue in office:

President	Irving Roaman, Reliable Textile Co., Inc.
Vice-President	Louis E. Kates, French Fabrics Corp.
Vice-President	Louis J. Brenner, Shirley Fabrics Corp.
Vice-President	A. J. Wullschleger, Wullschleger & Co., Inc.
Treasurer	Ira Jacobson, Cohn Hall Marx Co.
Chairman of the Board	Nat Leavy, Goldstein & Leavy, Inc.
Executive Director	Hilda Wiedenfeld

Kelly Now Consultant

Aubry D. Kelly, well-known in the silk trade, has set up his own business as a consultant specializing in the utilization of silk in blends with other fibers. Kelly recently retired from his position as vice president of George Elbogen & Co. He resides in Barnstable, Mass.

He has had extensive experience in a wide range of mill problems and solutions in such areas as faulty fabric constructions and poor finishing. He has also done a great deal of work in developing blended stock yarns which have been spun on all systems. In addition to his experience in fabric design, yarn preparation and finishing, he has been active for years in advertising, promotion and market research aimed at creating improved sales of silk and silk blend fabrics.

Roberts Places Debenture

Roberts Co. has completed the private sale of a $1,000,000 10-year 6% subordinated debenture, allowing the purchase of 140,000 common shares at $7 per share. Robert E. Pomeranz, president, said the transaction gives the company its strongest financial position in its 13-year history.

ACMI Annual Meetings

The American Cotton Manufacturers Institute will hold its next three annual meetings as follows: March 29-31, 1962, Palm Beach Biltmore Hotel, Palm Beach, Fla.; March 21-23, 1963, Hollywood Beach Hotel, Hollywood Beach, Fla.; April 2-4, 1964, again at the Palm Beach Biltmore Hotel.

MODACRYLIC

Eastman Chemical Products, Inc.
Tennessee Eastman Co.

Current

"Verel"* Staple and Tow

All items available in both bright and dull luster in standard lengths

Denier	Type A	Type B	Type C	Type D	Type III	Type HB
3	.75				$0.75	$0.75
5	.75	$0.75				.75
8	.75	.75				.75
12		.70	$0.70	$0.70		.70
16	.70	.70	.70	.70		.70
24			.75			

Type A—High crimp with good crimp retention
Type B—High crimp—less permanent than Type A
Type C—Medium crimp—nonpermanent—crimp easily removed
Type D—Low crimp—completely nonpermanent—fiber must be stabilized in dyeing
Type HB—Very high, very permanent crimp
Type III—Controlled shrinkage fiber

Prices are subject to change without notice.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.

Textile Fibers Dept. Effective December 1, 1959

Dynel Staple & Tow

Natural Dynel	
2, 3, 6, 12 Denier, Staple and Tow	1.10 per lb.
Liner blend, Staple only	.92 per lb.
24 Denier, Staple and Tow	1.05 per lb.
12 Denier, Type 80, Staple and Tow	.85 per lb.
3 Denier Type 63, High Shrinkage, Staple and Tow	1.15 per lb.
Dynel Spun with Colors:	
Blond, Pewter, Gray, Brown, Charcoal, Black	
3 and 6 Denier, Staple and Tow	1.20 per lb.
3 Denier Type 63, High Shrinkage, Staple and Tow	1.30 per lb.

Prices are quoted F.O.B. shipping point, freight prepaid our route, within continental limits United States, excluding Alaska and Hawaii.

Aeress Yarn

Denier & Filament	Turns/Inch & Twist	Package	Price
75-30	1.0 Z	Paper Tube	$2.10
100-40	1.0 Z	Paper Tube	2.05
150-60	1.0 Z	Paper Tube	2.00
200-80	1.0 Z	Paper Tube	1.95

Prices are quoted F.O.B. shipping point, frieght prepaid our route, within continental limits of United States, excluding Alaska and Hawaii.

NYLON

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1⅛"—4½"	None made	$1.24	$1.10
1.5	201	1⅛"—4½"	None made	1.26	1.12
2.3	420	1½" only	None made	1.24	1.10
3.0	231	1⅛"—4½"	470M	1.26	1.12
3.0	100/200	1⅛"—4½"	430M	1.24	1.10
3.0	101/201	1⅛"—4½"	455M	1.26	1.12
4.6	320	1"—6½"	None made	1.24	1.10
6.0	100	1½"—6½"	330M	1.20	1.06
6.0	101	1½"—6½"	345M	1.22	1.08
15.0	100	1½"—6½"	425M	.95	
15.0	101	1½"—6½"	None made	.97	
15.0	600	1½"—6½"	425M	.97	
15.0	601	1½"—6½"	None made	.99	

Types

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows: 1⅛, 1½, 2, 2½, 3, 4½ and 6½

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset.
Type 231 Semidull, normal tenacity, high crimp heatset.
Type 320 Bright, high tenacity, high modulus, no crimp.
Type 420 Semidull, high tenacity, high modulus, no crimp.
Type 600 Dull, normal tenacity, not heatset.
Type 601 Dull, normal tenacity, heatset.
These prices are subject to changes without notice.
Terms—Net 30 Days.
Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

OLEFIN

Beaunit Mills Inc.

Fibers Division Effective November 1, 1960

Polypropylene Bright Staple

Denier	Price per Lb.
1.5	$.90
3.0	.90
6.0	.90
15.0	.85

Staple cuts are 1½", 2" and 3".
Other lengths are available on request.
Terms: Net 30 days F.O.B. shipping point. Minimum Freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices subject to change without further notice.

Dawbarn Brothers, Incorporated

Effective June 8, 1961

Polypropylene for Outdoor Furniture Tape

Designation	Price Per Pound Average Yield Yds. per Pound	Less Than One Pallet	One Pallet And Over
DLP®57, 100FX8/0	4,500 per end	$1.15	$.80
DLP®51, 1000F/1/0	4,500	1.20	.85
DLP®51, 375/1/0	11,900	1.25	.90

Carton Weight		Average Pallet Weight
54#	1000FX8/0	650#
22#	1000F/1/0	475#
25#	375/1/0	500#

Deduction for Seasonal Shipments—Schedule:

June 1-August 31	(1st Quarter)	$.04 Per Pound
September 1-November 30	(2nd Quarter)	.02 Per Pound
December 1-February 28	(3rd Quarter)	.00 Per Pound
March 1-May 31	(4th Quarter)	.00 Per Pound

Terms:
Net 30 days, F.O.B., Waynesboro, Virginia.
Truckload Shipments (minimum 40 pallets) freight prepaid.
Less truckload shipments—freight collect.
Red yarn ..... Add $.03 per pound.
Order Acceptances:
All orders are subject to acceptance at the Home Office in Waynesboro, Virginia.
Orders of less than one pallet of a single size and color are considered for Sample and Development purposes only, and we reserve the right to refuse orders except for these purposes.

Standard Colors

100, White	4.72, Medium Green
331, Red	4.63, Dark Green
432, Turquoise	531, Yellow

All prices subject to change without notice.
"For overseas prices, see export price lists." Our export agent is the Turner Halsey Company of New York City who are now handling all world-wide exports with the exception of Canada.

Dawbarn Brothers, Incorporated

Effective July 1, 1961

Polyethylene and Polypropylene Rope Filament

(FOR CANADA SEE CANADIAN PRICE LIST)

Designation	Size	Price Per Pound Less Than One Pallet	1-119 Pallets	120-199 Pallets	200 Pallets And Over
DLP®61	3000/16	$1.16	$.81	$.80	$.79
DLP®61	182X66/20S	1.17	.82	.81	.80
DLP®60	3000/16	1.08	.73	.72	.71
DLP®60	182X66/20S	1.09	.74	.73	.72
DLP®21	3000/5/0	1.09	.74	.73	.72

DLP®61—Heat and UV Stabilized—Polypropylene
DLP®21—Heat and UV Stabilized—Polyethylene
DLP®60—Heat Stabilized Only—**Natural** (To be used as core yarn only)

Carton Weight		Average Pallet Weight
42	3000/16	500
40	3000/5	500
285	182X66/20S	570

Terms:
Net 30 days, F.O.B., Waynesboro, Virginia
Freight prepaid only on truckload shipments to shipping points East of the Mississippi River.
All less truckloads shipments freight collect.
Orange and Red material ..... Add $.03 Per Pound.
Order Acceptances:
All orders are subject to acceptance at the Home Office in Waynesboro, Va.
Orders of less than one pallet of a single size and color are considered for Sample and Development purposes only, and we reserve the right to refuse orders except for these purposes.
Orders must be completed within 90 days from first shipment.
Minimum of three weeks required for items not in inventory.

Standard Colors

Polypropylene		Polyethylene	
DLP®61-104, White	DLP®61-412, Green	110, White	410, Green
DLP®61-237, Blue	DLP®61-506, Yellow	245, Blue	511, Yellow
DLP®61-318, Red	DLP®61-701, Black	340, Red	701, Black
DLP®61-319, Orange	DLP®60-503, Natural		

Standard Colors and Sizes are cumulative on both Polypropylene and Polyethylene in full pallets only.
Above prices are subject to change without notice.
"For overseas prices, see export price lists." Our export agent is the Turner Halsey Company of New York City who are now handling all world-wide exports with the exception of Canada.

Dawbarn Brothers, Incorporated

Effective September 1, 1961

Polypropylene Monofilament Price List

(Standard Colors*)

(Price Per Pound)

Designation	Average Yield Yds. Per Lb.	Less Than One Pallet	One Pallet And Over
DLP®51, 375/1/0	11,900	$1.25	$.90
DLP®57, 270F × 24/0	16,500 per end	1.30	.95
DLP®57, 525F × 12/0	8,500 per end	1.25	.90

Carton Weight		Average Pallet Weight
56#	270F × 24/0	675
54#	525F × 12/0	650
25#	375/1/0	500

TERMS:
Net 30 days, F.O.B., Waynesboro, Virginia.
Freight collect on all less truck load shipments.
Freight prepaid on truck load shipments (40 pallets minimum).
* Red, Maroon ..... Add $.03 per pound
ORDER ACCEPTANCES:
All orders are subject to acceptance at the Home Office in Waynesboro, Virginia.
Orders of less than one pallet of a single size and color are considered for Sample and Development purposes only, and we reserve the right to refuse orders except for these purposes.

FOR CANADA

Freight collect on all shipments.
All prices quoted in United States Currency.

All Tariffs, Customs, Brokers Fees, etc. to be paid by the Purchaser.
"For overseas prices, see export price lists." Our export agent is the Turner Halsey Company of New York City who are now handling all world-wide exports with the exception of Canada.

Dawbarn Brothers, Incorporated

Waynesboro, Virginia

DLP®3 Polyethylene Ribbon Price List

Designation	Price Per Pound Avg. Yield Yds. per lb.	Less Than One Pallet	One Pallet And Over
DLP®3, 1500R/1/0	2,980	$1.17	$.82
DLP®3, 850R/1/0	5,250	1.21	.86

Carton Weight		Avg. Pallet Weight
31#	1500R	500#
35#	850R	550#

Terms:
Net 30 Days, F.O.B., Waynesboro, Virginia.
Truckload Shipments (Minimum 40 Pallets) Freight Prepaid.
Less Truckload Shipments—Freight Collect.
Red Yarn ..... Add $.03 Per Pound
Order Acceptances:
All orders are subject to acceptance at the Home Office in Waynesboro, Virginia.
Orders of less than one pallet of a single size and color are considered for Sample and Development purposes only, and we reserve the right to refuse orders except for these purposes.
All prices subject to change without notice.

POLYESTER

Beaunit Mills Inc.

Current Prices Vycron Semi-Dul Polyester

	Denier	Price Per Lb.
Staple	1.5	$1.00
Staple	3.0	1.00
Staple Cuts are 1⅛" to 6".		
Tow for Converters	1.5	1.00
(Tow Bundle 200,000 Denier)	3.0	1.00

Spun Dyed Black 15¢ per lb. extra.
"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be a buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Dacron"** Staple and Tow

Denier	Luster	Type*	Length	Tow Bundle	1st Gr.
1.5	Semidull	35	1¼"-1½"	None made	$1.14
1.5	Semidull	54	1¼"-1½"	None made	1.14
1.5	Semidull	64	1¼"-3"	None made	1.24
2.25	Semidull	64	1¼"-4½"	450M	1.24
3.0	Semidull	54	1¼"-4½"	450M	1.24
3.0	Semidull	61	1¼"-4½"	None made	1.24
3.0	Semidull	64	1¼"-4½"	450M	1.24
4.0	Semidull	64	1¼"-4½"	450M	1.24
4.5	Semidull	54	1½"-4½"	450M	1.24
6.0	Semidull	54	1½"-4½"	450M	1.24
6.0	Semidull	61	1½"-4½"	None made	1.24

* Type:
Type 35—More Pill Resistant Staple for Cellulosic Bends.
Type 54—Semidull, Normal Tenacity.
Type 61—Industrial Staple having 45% Shrinkage. Not intended for Dyeable Uses.
Type 64—More Pill Resistant Staple, with Greater Dyeing Versatility.

"Dacron" Polyester Color-Sealed Black Staple and Tow

2.25	Color Sealed Black	64	1½"-4½"	450M	1.44
3.0	Color Sealed Black	64	1½"-4½"	450M	1.44

F. O. B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.
** Dupont's Registered Trade-mark for its Polyester Fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Current

"Kodel"

Denier	HM	Types Semi-Dull I	II	S (Black Only)
1.5 staple only	$1.14	$1.14	$1.14	
2.25 staple and tow	....	....	1.24	$1.44
3.0 "	....	....	1.24	1.44
4.5 "	....	....	1.24	1.44
6.0 "	....	....	1.24	....
8.0 "	....	....	1.24	....

Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.
• "Kodel" is a trade-mark of the Eastman Kodak Company.

Celanese Fibers Company

Current Prices Effective April 14, 1961

*Fortrel Polyester Staple and Tow

Denier	Luster	Price
1.5	Semi-dull	$1.14
3	Semi-dull	1.24
4.5	Semi-dull	1.24
6	Semi-dull	1.24

Staple lengths 1½", 2" and 3".
All staple packaged in 500 pound bales.

Tow

Denier	Luster	Price
3	Semi-dull	$1.24
4.5	Semi-dull	1.24
6	Semi-dull	1.24

Total denier of all tow is 225,000.
All tow packaged in 300 to 400 pound cartons.
TERMS: Net 30 days. F.O.B. destination—Freight prepaid our route within the continental limits of the United States, excluding Alaska. Prices subject to change without notice.
* Registered Trademark of Fiber Industries Inc.

VINYON

American Viscose Corp.

Effective October 1, 1956

Avisco Vinyon Staple

1.5 denier 1½" Unopened	$.90 per lb.
3.0 denier ½" Unopened	.80 per lb.
3.0 denier 1¼" Unopened	.80 per lb.
3.0 denier 1¼" Opened	.90 per lb.
3.0 denier 2" Opened	.90 per lb.
5.5 denier 1" Opened	.90 per lb.
5.5 denier 1½" Unopened	.80 per lb.

Terms: Net 30 days.

SARAN

The National Plastics Products Company—Fibers Division Odenton, Maryland

Current Prices:

Saran Staple

Type	Denier	Natural	Colors
2Y—Upholstery	22	$0.70	$0.75
2Y—Upholstery	16	.74	.79
3Q—Industrial Fabrics	22	.68	.72
1C—Carpets	22	.68	.72
1M—Mops	22	.68	.72

In any staple length 1¼ to 6". Also 45 denier, 7" cut.
F.O.B. Odenton, Maryland.
Terms: net 30 days.

GLASS YARN

Owens Corning Fiberglas Corp.

A Decorative Continuous Yarn

DE 150 1/0 1.0 TPI ..... 53¢ per lb.
F.O.B. Freight Allowed.

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CLASSIFIED RATES
Per Inch
2 columns to the page, each column 8 inches deep

1	Inch	$8.00
2	Inches	15.00
3	Inches	22.50
4	Inches	28.00
5	Inches	35.00
6	Inches	42.00
7	Inches	49.00
8	Inches	52.00

TEXTILE TECHNICAL DEVELOPMENT AND LIAISON OFFICER FOR JAPAN

The International Wool Secretariat invites applications for the post of Technical Officer in its Japanese Branch, Tokyo.

The International Wool Secretariat is an organization established by the statutory Wool Boards of Australia, New Zealand and South Africa for carrying out their global policy of increasing the consumption of wool by means of promotion, market research, scientific research, technical development and liaison with all segments of the wool consuming and distributing industries.

Applicants should have a degree in chemistry, physics, chemical or mechanical engineering or the equivalent as well as several years experience in either research, development or production in the textile industry. Such experience in the various branches of the wool textile industry would be an advantage.

Fluency in speaking Japanese and reading Japanese professional publications is essential. The duties of the Technical Officer will include organizing a technical information and service group to introduce into the Japanese wool textile industry new techniques (chemical and physical) for producing new and improved wool products and for increasing the efficiency of wool manufacturing. The Technical Officer will be required to maintain close contact in English with similar I.W.S. operating groups throughout the world.

Remuneration will compare favorably with similar appointments in Japan.

Applicants should apply in writing giving full details of their qualifications and personal background to:

Director of Science and Technology
The Wool Bureau, Inc.
360 Lexington Avenue, New York 17, N. Y.

Business Service Section

Exclusively for Business, Laboratory and Mill Services; Positions and Men Wanted; Business Opportunities; Mill Properties Wanted or For Sale; Reconditioned Machinery and Equipment, etc.

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2 Inches	15.00
3 Inches	22.50
4 Inches	28.00
5 Inches	35.00
6 Inches	42.00
7 Inches	49.00
8 Inches	52.00

Calendar of Coming Events

Nov. 8-9—Chemical Finishing Conference. Sheraton Park Hotel, Washington, D. C.
Nov. 9—Thread Institute annual meeting. Hotel Commodore, New York, N. Y.
Nov. 13-15—Narrow Fabrics Institute, Inc. meeting. Statler-Hilton, New York, N. Y.
Dec. 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.

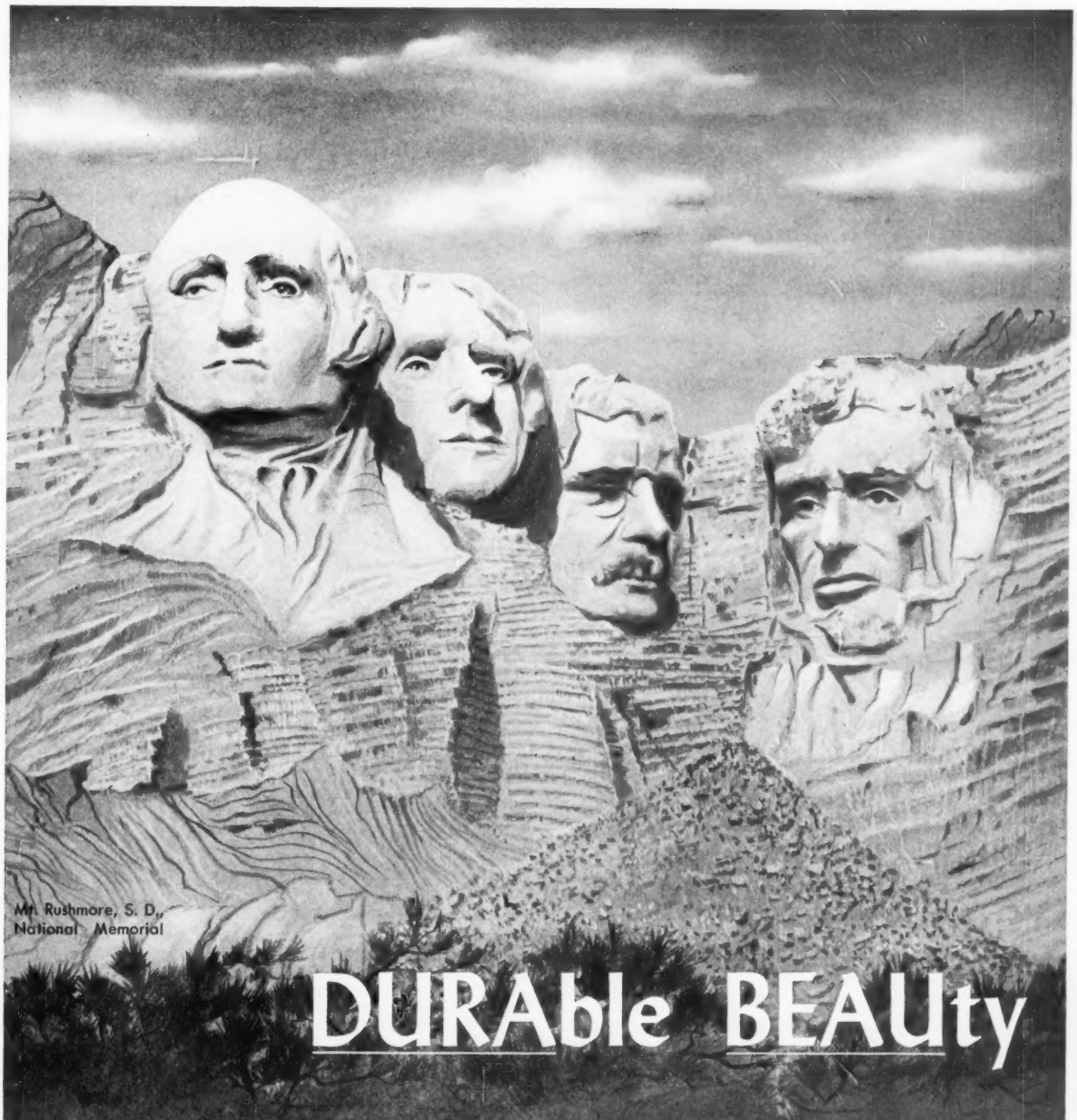
1962

Jan. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jan. 7-11—National Retail Merchants Association, annual convention, The Statler Hilton, New York, New York.
Jan. 11-12—National Cotton Council, Annual Research Clinic, The Carolina Hotel, Pinehurst, North Carolina.
Jan. 14-18—National Association of Textile and Apparel Wholesalers, annual convention, The Statler Hilton, New York, N. Y.
Feb. 7—American Association for Textile Technology, annual conference, Hotel Commodore, New York, New York.
Feb. 15-16—American Society for Quality Control, Textile & Needle Trades Division, annual conference, Clemson House, Clemson, S. C.
Mar. 7—AATT New York Chapter, Monthly Meeting, Hotel Vanderbilt, New York, New York.
Mar. 29-31—American Cotton Manufacturers Institute, annual meeting, Palm Beach Biltmore Hotel, Palm Beach, Florida.
Apr. 4—AATT New York Chapter, Monthly Meeting, Hotel Vanderbilt, New York, New York.
Apr. 11-13—Textile Engineering Division, American Society of Mechanical Engineers, spring meeting, North Carolina State College, Raleigh, N. C.
Apr. 11-13—Fiber Society, joint meeting with Textile Division of ASME, Raleigh and Durham, N. C.
May 1-4—World Congress of Man-Made Fibers, Royal Albert Hall, London, England.
May 2—AATT New York Chapter, Monthly Meeting, Hotel Vanderbilt, New York, New York.
May 2-5—Carolina Yarn Association, annual outing, Pinehurst, N. C.
May 10-11—Underwear Institute, 96th annual meeting, New York, N. Y.
May 16-19—Georgia Textile Manufacturers Association, annual convention, The Diplomat Hotel, Hollywood-by-the-Sea, Florida.
May 30-Jun. 2—Tufted Textile Manufacturers Association, national convention, Diplomat Hotel, Miami Beach, Florida.
May 31-Jun. 2—South Carolina Textile Manufacturers Association, annual meeting, Sea Island, Georgia.
Jun. 6—AATT New York Chapter, Monthly Meeting, Hotel Vanderbilt, New York, N. Y.
Oct. 3-4—National Cotton Council, chemical finishing conference, Sheraton Park Hotel, Washington, D. C.
Oct. 10-12—Fiber Society, at Boston and Natick, Massachusetts, Quartermaster Command, host.
Oct. 15-19—Southern Textile Exposition, Textile Hall, Greenville, South Carolina.
Nov. 14-17—Annual Convention of the American Association of Textile Chemists and Colorists, Atlanta Biltmore Hotel, Atlanta, Georgia.

Index to Advertisers

(See previous or subsequent issues)

BUSINESS SERVICE



Mt. Rushmore, S. D.,
National Memorial

DURAble BEAUty

DURA BEAU reveals the hidden beauty of *touch* in fabrics — the added buy-appeal in fabrics with extra touch-appeal! Observe, critically, the sensuous, petal-soft, velvet-smooth surface of fabrics DURA BEAU finished . . . . so thrilling to the touch . . . so heavenly comfortable against the skin! Write for complete information . . . .

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Manufacturers of Textile Finishes, Resins, Softeners, Detergents, Soaps, Oils and Specialties

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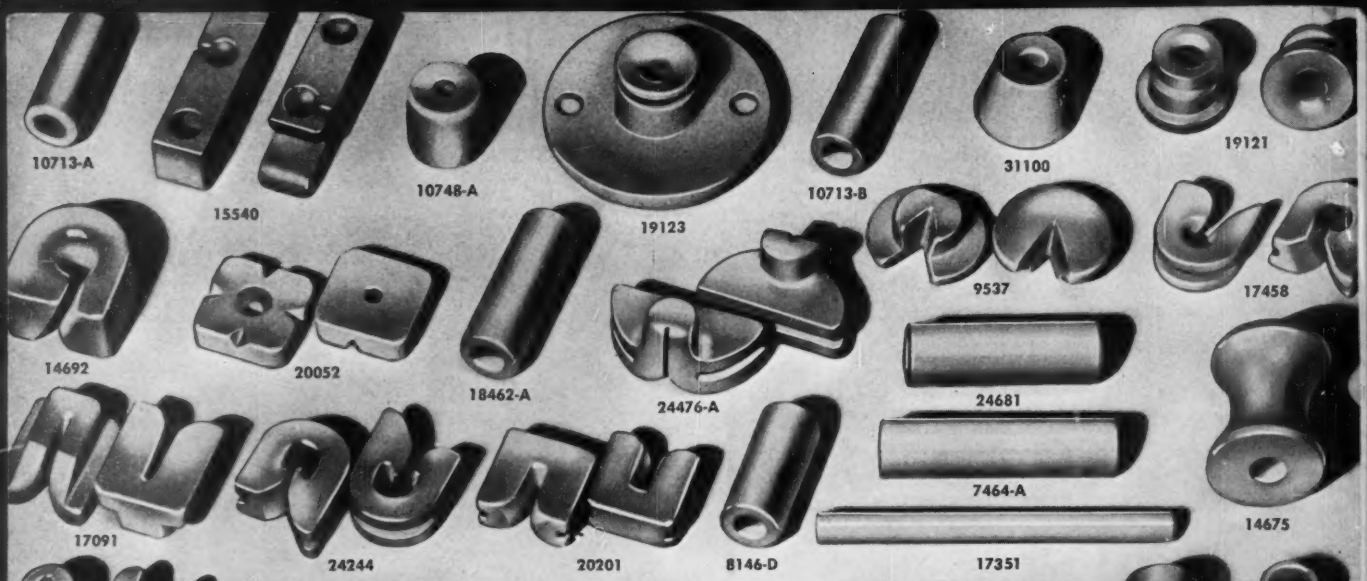

Standard ALSIMAG® *guides*

in the **right material** for **your job!**

Here are a few of many standard AlSiMag guide designs ready for shipment

Advantages important to your mill are offered by AlSiMag:

Choice of Materials. A whole family of materials for the textile field, each with advantages for a particular application. Electrically conductive AlSiMag 193, for example, aids in the control of static.

Finer Quality. Homogeneous—no point of sudden failure. Smooth. Hard. Uniform. Dimensionally accurate. Help achieve more uniform tensions to improve product quality. Precision tolerances.

Longer Life. Tests on finer denier synthetic yarns at high speeds and tensions proved in every case reported to us that AlSiMag guides far surpassed those previously used. Fewer replacements; less down-time.

Controlled Finishes. AlSiMag guides can be supplied in a wide range of finishes —from 4 to 80 RMS micro inches—uniform from part to part and from lot to lot. Wonderful for lighter tensions!

TEST SAMPLES ON REQUEST.

SHOWN APPROX. ACTUAL SIZE

If you don't see the guides you need on this page, send us complete details. We can give you speedy service on custom designs. Custom samples for test can be produced promptly at reasonable cost. Write today.

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